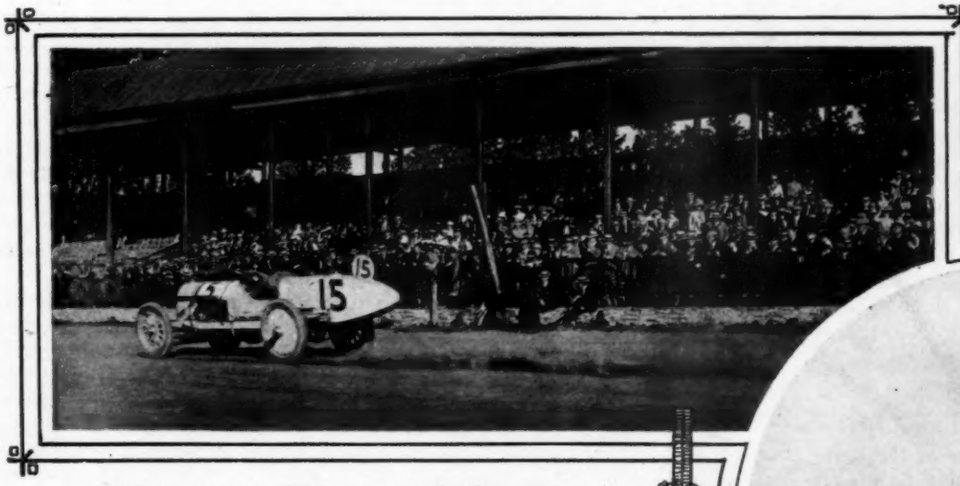
VOL. XXVI NEW YORK—THURSDAY, JUNE 13, 1912—CHICAGO No. 24

THE AUTOMOBILE

# New Records at Quakers' Races

## Burman Creates New Mile and 3-Mile Figures for Philadelphia Tracks—All Events Were for Piston Displacement, Free-For-All or Invitation Classes



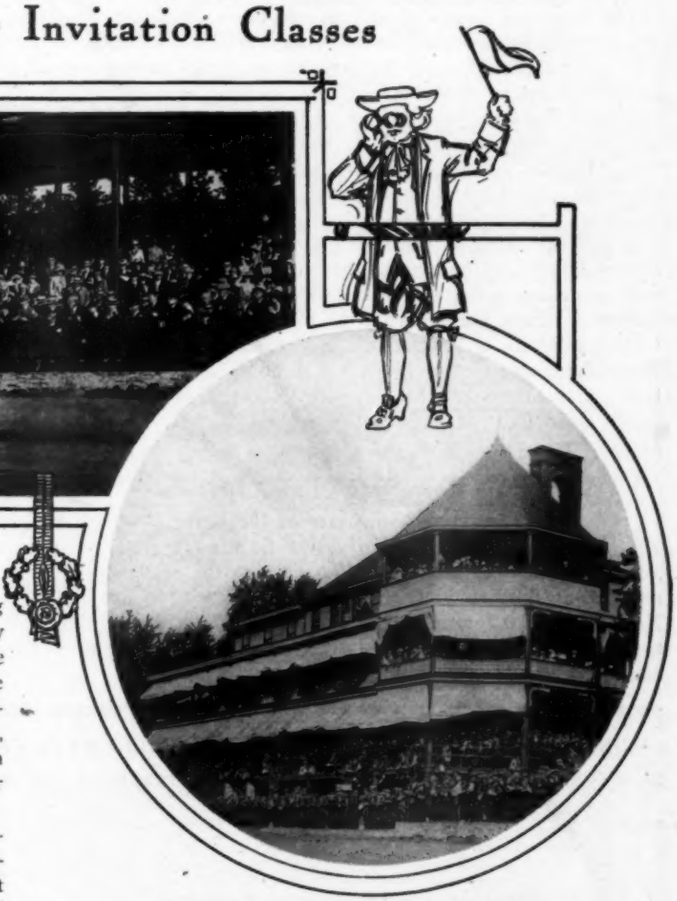

Bob Burman in his 100-horsepower Cutting racer

PHILADELPHIA, June 10—Before a crowd numbering about 5,000, a successful race meeting was held Saturday afternoon at Belmont park under the auspices of the Quaker City Motor Club. The track record for the flying mile was broken and incidentally a new mark was made for Philadelphia and vicinity when the Blitzen Benz, driven by Burman, was shot around the oval in 54.26 seconds, which is a reduction of 3.44 seconds. The former mark was made by a Simplex car driven by DePalma last year on Point Breeze track.

The chief race of the day was for the Remy brassard in 3-mile heats from a flying start. The Ohio entry driven by Burman, won both heats in rather easy fashion. This carries with it a trophy valued at $2,500 and a salary to the winning driver of $75 a week.

The events carded did not include any stock car races but were run under classes C, D and E which are respectively rated as piston-displacement, free-for-all and invitation classes.

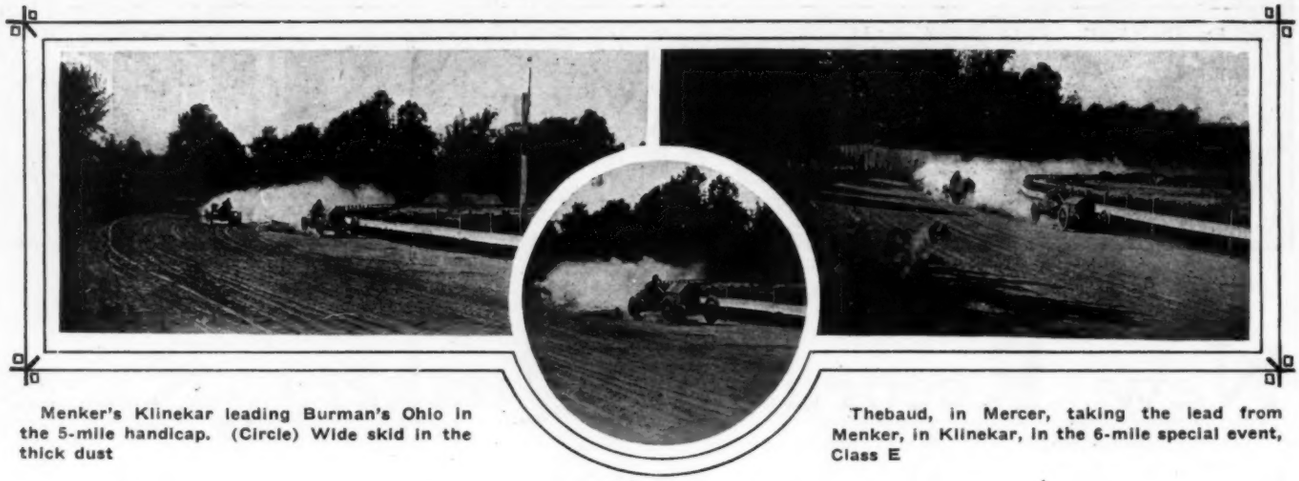
The first race on the program was for cars measuring from 161 to 230 cubic inches of piston displacement and developed quite a pretty struggle for most of the 10 miles. The Buick entry had a little too much speed for the others and bade them good-bye in the last lap, winning by over 3-8 mile from the Flanders and Empire entries. There was a tight fit between these two until they reached the head of the stretch on the final lap when the Flanders drew away from its rival.



Crowds filled the clubhouse to overflowing

In the second race there was a spectacular mishap which looked much worse than it really proved to be. An E-M-F and a Bergdoll were running in close attendance when the former cast a shoe and despite Burk's efforts, plunged through the fence. There was a shower of debris and dust to mark the place where the E-M-F went through, but the car was not sufficiently ahead of the Bergdoll to allow it to escape even with that warning and to the horror of the spectators the second car followed almost in the tracks of its predecessor and disappeared amid another shower of splinters.

There was considerable confusion in the stands but before the



Menker's Klinekar leading Burman's Ohio in the 5-mile handicap. (Circle) Wide skid in the thick dust

Thebaud, in Mercer, taking the lead from Menker, in Klinekar, in the 6-mile special event, Class E

official car reached the scene of the accident both Burk and Fanning were seen standing on the edge of the track waving their arms to show that neither was injured.

The race was called off and an invitation special at 6 miles was installed in its place. In this a Mercer and a Klinekar were entered and the former won by a tight squeak, having several lengths advantage at the wire.

One of the sharpest struggles of the afternoon resulted from the Cutting-American duel in the third regular event at 10 miles. The American driven by Ralph Earle forced the giant Cutting to do its prettiest and actually led for a considerable part of the race. Burman, handling the Cutting with his usual skill, jockeyed the turns to perfection, forcing his rival to take the longer course and by getting the pole position in the last half mile, came across the wire with about 1 second advantage.

Burman drove the Blitzen Benz a very fast mile, considering track conditions, and was timed in 54.26, lowering the mark for Philadelphia and vicinity by over 3 seconds. The car was timed between the third and fifth furlong marks by several watches in the stand in 11 seconds, but no official cognizance was taken of the fractional distances.

## Ohio Racer Wins Remy Brassard

A big Ohio racer won both heats of the Remy brassard contest, hanging up a mark of 2:56.81 in the first trial over the 3-mile route. Both heats failed to develop the semblance of a struggle as Burman took no chances of drawing a fine finish. No official mark for the 3-mile distance had been made prior to to this race at the track, but the time was faster than was ever made for 3 miles over any longer distance at Narberth. In the second heat the Ohio scored in a trifle more than 3 minutes, winning by 1-4 mile from the Mercedes entry.

One of the most interesting events on the program was the special race at 5 miles for cars to be run in second speed. There were two contestants, a Lion and an Otto. The former, driven by M. W. David, showed the way in 6:28.86, leading the Otto by 1-2 mile. The speed of the winner was a trifle more than 45 miles an hour. The Otto also showed high efficiency on second speed, making better than 40 miles an hour.

## Mercer Captures 5-Mile Feature

A handicap race with the handicaps based upon showings at the meeting was a 5-mile feature and was won by a Mercer car with a 1-minute allowance. It puzzled many of the spectators to know why the winning car was given a full minute while the Klinekar, which finished behind it in the special race was handicapped at 15 seconds and the Buick winner of the first event was given 30 seconds. Burman's Cutting was started from scratch and failed to develop as much speed as it had done in the class race in which it was returned winner. The Cutting averaged 58 miles an hour in the class race and only 54 miles an hour in the handicap. The winning Mercer made a trifle better rate in the handicap than it did in the special race. The Buick about equalled its previous performance, while the Klinekar was lost with its handicap.

The Division 4-C event was handily captured by a Klinekar driven by Menker with a Stutz second and a G. J. G. third.

The closing event of the day was a combination race at 25 miles. This went to Burman's Cutting in an easy race in which the driver took no chances. It was carded as a combination of

## SUMMARY OF EVENTS AT THE ANNUAL SPRING MEET OF THE QUAKER CITY MOTOR CLUB AT NARBERTH, PA.

**Division 2-C, non-stock. Piston displacement 161-230 cubic inches. Distance 10 miles**

| Position | Car | Driver | Time |
|---|---|---|---|
| 1 | Buick | E. Bauer | 11:34.08 |
| 2 | Flanders | G. Duval | 12:04.03 |
| 3 | Empire | R. S. Smith | 12:09.68 |

**Division 3-C, 231-300 cubic inches. Distance 10 miles**

| | | | |
|---|---|---|---|
| * | E-M-F | W. Burk | No finish |
| * | Berdoll | F. Fanning | No finish |

**Special Match, Class E. Distance 6 miles**

| | | | |
|---|---|---|---|
| 1 | Mercer | P. J. Thebaud | 6:20.58 |
| 2 | Klinekar | J. Menker | 6:21.53 |

**Division 4-C, 301-450 cubic inches. Distance 5 miles**

| | | | |
|---|---|---|---|
| 1 | Klinekar | J. Menker | 5:05.99 |
| 2 | Stutz | S. B. Blockson | 5:16.58 |
| 3 | G. J. G. | P. J. Thebaud | 6:22.18 |

**Division 5-C, 451-600 cubic inches. Distance 10 miles**

| | | | |
|---|---|---|---|
| 1 | Cutting | R. Burman | 10:15.14 |
| 2 | American | R. Earle | 10:16.53 |

*Went through fence in fourth lap; race called off.

**Mile exhibition against time**

| Position | Car | Driver | Time |
|---|---|---|---|
| 1 | Benz | R. Burman (New record for track.) | 54.26 |

**Free-for-all, flying start. Remy Brassard. 3 miles. First heat.**

| | | | |
|---|---|---|---|
| 1 | Ohio | R. Burman | 2:56.81 |
| 2 | Benz | J. Matson | 3:48.73 |

**Second heat**

| | | | |
|---|---|---|---|
| 1 | Ohio | R. Burman | 3:00.82 |
| 2 | Mercedes | L. Meneghetti | 3:15.91 |

**Special for cars running on second speed. Distance 5 miles**

| | | | |
|---|---|---|---|
| 1 | Lion | M. W. David | 6:28.86 |
| 2 | Otto | E. H. Irvin | 7:24.37 |

**Handicap. Distance 5 miles**

| | | | | |
|---|---|---|---|---|
| 1 | (1 minute) | Mercer | P. J. Thebaud | 5:10.76 |
| 2 | (scratch) | Ohio | R. Burman | 5:34.38 |
| 3 | (30 seconds) | Buick | E. Bauer | 5:45.11 |
| 4 | (15 seconds) | Klinekar | J. Menker | 5:48.56 |

**Combination race. Distance 25 miles**

| | | | |
|---|---|---|---|
| 1 | Cutting | R. Burman | 25:53.42 |
| 2 | American | R. Earle | 27:29.64 |
| 3 | Ohio | J. Raimey | 27:41.07 |
| 4 | Klinekar | W. Goswell | 28:33.46 |

**SCORES IN TEAM RELIABILITY MATCH BETWEEN CHICAGO MOTOR CLUB AND ILLINOIS ATHLETIC CLUB**

CHICAGO MOTOR CLUB

| No. | Driver and Car | First Day | Second Day | Total |
|---|---|---|---|---|
| 1 | Briggs, Chalmers | 0 | 2 | 2 |
| 3 | DeLong, Chalmers | 2 | 2 | 4 |
| 5 | Sinsabaugh, Velie | 0 | 0 | 0 |
| 7 | Stalnaker, W. T., Premier | 0 | 0 | 0 |
| 9 | Melcher, Chalmers | 21 | 0 | 21 |
| 11 | Van Sicklen, Apperson | 0 | 0 | 0 |
| 13 | Schielo, Mercer | Withdrew. | | |
| 15 | Hirschl, Pierce-Arrow | 0 | 0 | 0 |
| 21 | Kavanaugh, Midland | 1 | 0 | 1 |
| 23 | Lee, Krit | 0 | 0 | 0 |
| 25 | Zimmerman, Stutz | 0 | 0 | 0 |
| 27 | Sackett, Midland | 1 | 0 | 1 |
| 33 | Brown, Velie | 4 | 0 | 4 |
| 35 | Simmons, Hupmobile | 0 | 0 | 0 |
| 39 | Breakstone, Midland | 0 | 0 | 0 |
| 43 | Gaidzik, White | 0 | 0 | 0 |
| 45 | Choate, Kisselkar | 0 | 0 | 0 |
| 47 | Githens, Everitt | 0 | 1 | 1 |
| 51 | Deagan, Pierce-Arrow | 0 | 0 | 0 |

Team total, 34; fractional penalization, 28.33 points.

ILLINOIS ATHLETIC CLUB

| No. | Driver and Car | First Day | Second Day | Total |
|---|---|---|---|---|
| 2 | Lewin, Chadwick | 0 | 0 | 0 |
| 4 | Iverson, Apperson | 0 | 0 | 0 |
| 6 | Cooney, Winton | 0 | 0 | 0 |
| 8 | Knowles, Alco | 1 | 0 | 1 |
| 10 | Gaushur, Bergdoll | 0 | 0 | 0 |
| 12 | Knab, Pierce-Arrow | 0 | 0 | 0 |
| 14 | Stein, Winton | 0 | 0 | 0 |
| 16 | Wolf, Locomobile | 0 | 0 | 0 |
| 18 | Wilson, Cadillac | 0 | 0 | 0 |
| 20 | Moore, Maxwell | 1 | 0 | 1 |
| 22 | Stewart, Buick | 0 | 22 | 22 |
| 24 | Regelin, Cadillac | Withdrew. | | |
| 26 | Peterson, Maxwell | 1 | 0 | 1 |
| 28 | Catoon, Overland | 0 | 0 | 0 |
| 30 | Bersbach, Mitchell | 0 | 0 | 0 |
| 32 | Paterson, Premier | 0 | 45 | 45 |

Team total, 70 points.

divisions 3-C, 4-C and 5-C with prizes for the winning car in the two smaller divisions and one for the big car class. Just which car and driver was entitled to the small car prize appeared uncertain, but the Cutting won the purse for the big cars.

The day was delightful in every way with warm sunshine and cool breeze and the crowd proved to be quite as large as could be handled with comfort.

The track had been treated to a dust-laying preparation before the races, but after the contesting cars had been busy for an hour, great clouds of dust were raised on the far turn whenever a special spurt of speed was being indulged.

Aside from the mishap noted in the second event, the card was run off without untoward incident. This was due in a measure to the strict application and administration of the racing rules but credit must be given to the skill of the drivers who avoided crowding on the turns and showed their fast work in the straightaways.

—

MINNEAPOLIS, MINN., June 10—For its fourth annual run in July to Winnipeg and return the Minnesota State Automobile Association has notified J. H. Prior, the pathfinder, to route the run so far as possible as follows: St. Paul, Minneapolis, Anoka, Little Falls, Long Prairie, Wadena, or Browerville or Eagle Bend, Perham, Frazee, Detroit, Mahnomen, Red Lake Falls, Thief River Falls, Warren, Argyle, Hallock Emerson, Winnipeg. Returning: Emerson, East Grand Forks, Crookston, Moorhead, Barnesville, Breckenridge, Fergus Falls, Elbow Lake, Glenwood, Paynesville, Annandale, Maple Lake, Buffalo, Minneapolis, St. Paul. The annual trip is calculated to take 7 days, one being spent in Winnipeg. H. H. Clark, of the Scarborough, will go with Mr. Prior and the route will be made official in the tour book. Dr. C. E. Dutton, who is to conduct the A. A. A. reliability tour in October, will have charge of the Minnesota tour.

# Chicago Motor Club Wins

## Beats Out the Illinois Athletic Club in the Annual Team Reliability Match, 28. 33 to 70

—

CHICAGO, June 8—The local contest season was opened this week when the Chicago Motor Club and the Illinois Athletic Club participated in a team reliability match to La Salle, Ill., and return in which thirty-five cars participated, the Motor club having nineteen of them. The affair was run under grade 3 and penalizations were made only for work done on the road and for being late at controls. It was a 2-day affair and although the I. A. C. led at the end of the first day the motor club nosed out a victory—28.33 to 70, the fractional penalization being given because of the difference in the size of the two teams.

In most cases the demerits were given for stalled motors, but Paterson's big penalty came following an accident in which his rear axle was damaged. Regelin withdrew after the first day when he hit a bridge near Joliet, almost going into the canal. Schillo, who had considerable tire trouble, the first day also pulled out by agreement with Regelin, so the score of neither was counted.

The most enjoyable feature of the match was the entertainment furnished by the motorists of La Salle, who met the Chicagoans at Deer Park, giving them a barbecue in a beautiful glen, then taking them to Starved Rock for an inspection of the new state park. In the evening at La Salle the Chicagoans again were entertained at the Elks club. The first day's journey was 115 miles in length and 109 miles the second day.

Burman in Cutting leading Earle in American in 10-mile event. (Circle) Changing a tire on Menker's Klinekar

Cars lined up for the start of the Division 2-C non-stock, 10-mile event, won by Bauer in Buick

# Delays Mar Race Program

## Meet at Rockingham Park Spoiled by Inefficiency of Some of the Officials—Mix-up in Time

### Lexington Wins Free-for-All Handicap—Berkshire Captures 20-Mile Special Event

SALEM, N. H., June 10—A good program that could have been run off in 3 hours—there being but six events—was stretched to nearly 5 hours, thus spoiling today's meet at Rockingham Park. It was a splendid day for the races and there were more than 15,000 present, according to the figures of the management. There were 3,300 cars parked in the enclosure. Thousands motored from Boston and hundreds came by train.

About an hour was spent in giving eight cars a 1-mile time trial. It was then 3 o'clock and for the next hour there was nothing doing. A National car that had been delayed getting to the park was allowed to make a trial, and after a couple of laps the owner was hooked out and another driver put in. A Jackson car was then given a chance to speed around for time half a dozen laps, but nothing came of it. Then a Thomas was given a chance to do a couple of whirls.

At last they managed to get Grant in a Berkshire, LeCain in a Stutz and Jessup in a Buick out for the Class E 5-mile event. Jessup took the lead early and maintained it to the finish, winning easily, with the Stutz second and the Berkshire third.

After another loaf the 5-mile invitation for amateurs started with John J. Kingsley in a Thomas, Nelson Slater in a Bianchi, and W. Bigelow in a Buick. Kingsley and Slater made a pretty race for about 2 miles and then Kingsley pulled away and won easily. Bigelow had tire trouble and did not finish. More delays.

The Class D, free-for-all handicap, had eight starters with Stutz on scratch. A Metz with the limit, 3m. 54s. started first. In addition Hudson, Lexington, Jackson, Chadwick, Berkshire, Buick and Stutz entries also started. It was a pretty race for the last few miles. The Metz lapped the field twice before the others got away and was hanging on to the lead until after the fifth mile, when the Lexington crawled up and it was a nice fight between that car and the Hudson, for the Metz stopped in the seventh. The Chadwick hit up a good clip and was doing well, but the handicap was too much for the others. The Lexington crossed the line first, with the Hudson second and the Chadwick third. The Buick was announced as winning second. The newspaper men and the scorers had it running nine laps. Another mix-up came on the time. The Lexington's time was announced as 13:22 3-5, the Hudson as second in 13:33 4-5, and the Chadwick third in 13:28 4-5.

### Berkshire Won 20-Mile Match

Then followed a special 20-mile match for professional drivers with Basle in the Chadwick, Grant in the Berkshire, and Cobe in the Jackson. This was a runaway for Grant as he finished 3 miles ahead of Cobe, while Basle stopped in the sixth mile. The 50-mile event followed. It was getting late so an effort was made to cut it to 25 miles, but the Stutz people refused. There were seven starters, Berkshire, Lexington, Stutz, Buick, National, Bianchi and Jackson. It was a pretty race for the first 10 miles, with Basle in the Bianchi, leading the way, closely followed by Grant, in the Berkshire, and the Stutz, Le Cain driving, and the Jackson with Cobe fighting for third place.

Jessup, in the Buick, lost his bonnet in the first lap in the stretch, and by the time he had picked it up and replaced it the leaders were 3 miles ahead of him. The Lexington threw a shoe in the ninth mile and was out and the National stopped in the seventh because of loose spark-plugs. The other six were then fighting it out with the Buick gaining with every lap. The Bianchi lost the lead in the 22d mile as the magneto worked loose and came off. Grant in the Berkshire then had first place with the Stutz second not far behind. In the 27th mile Grant had to stop, as a gasoline feed pipe worked loose and he lost his fuel, the Stutz taking the lead. But the Buick was coming fast all the time and before the 40th mile it passed into first place. The pace was too much, however, and the Buick stopped in the 44th mile with motor trouble and the Stutz shot into the lead again and won. Grant, who got going again, won second money. As the Bianchi was out of commission the special 5-mile event between it and the Chadwick was called off. The summary:

**Time Trials, 1 Mile**

| No. | Car | Driver | Time |
|---|---|---|---|
| 9 | Bianchi | Basle | 1:03⅘ |
| 3 | Chadwick | Hersey | 1:05⅘ |
| 4 | Stutz | Lecain | 1:05⅘ |

**Division 4, Class C, Non-stock 5-Mile Race**

| | | | |
|---|---|---|---|
| 6 | Buick | Jessop | 5:37½ |
| 4 | Stutz | Lecain | 5:43 |
| 2 | Berkshire | Grant | 5:52 |

**Amateur Invitation Match Race, 5 Miles**

| | | | |
|---|---|---|---|
| 8 | Thomas | Kingsley | 5:51⅘ |
| 9 | Bianchi | Slater | 6:03⅘ |

**Free-for-All Handicap, 10 Miles**

**Handicap**

| | | | |
|---|---|---|---|
| 1 | Lexington | Esleck | 2:56 |
| 10 | Hudson | Wills | 3:54 |
| 3 | Chadwick | Hersey | :50 |

**Class E, 50-Mile Non-stock Race**

| | | | |
|---|---|---|---|
| 4 | Stutz | Lecain | 100:20 |
| 2 | Berkshire | Grant | 45 laps (still running) |

**Special Match Race, 50 Miles**

| | | | |
|---|---|---|---|
| 2 | Berkshire | Grant | 25:12⅘ |
| 7 | Jackson | Cobe | |
| 3 | Chadwick | Basle | |

## Nutmeg State Motorists Rebel

BRIDGEPORT, CONN., June 10—A general revolt of 15,000 automobilists in Connecticut against the State Highway Department has been declared. Within a few days prominent automobilists

## Soldiers to Guard Tacoma Course

TACOMA, WASH., June 10—Governor M. E. Hay, of Washington, is expected to put his stamp of approval on the plan of the committee in charge of the two-day automobile road race meet at Tacoma, July 5 and 6, to guard the 5-mile prairie course with state militia. Officers of the Tacoma Automobile Club and Tacoma Carnival Association, who are completing the details of the races, were in conference with the governor during the last week and explained to him the necessity of properly safeguarding the lives of the thousands of spectators who will avail themselves of this first opportunity to see a big road race in the Northwest.

Besides the two big Fiat racers which Tetzlaff and Bragg will drive in the 250-mile free-for-all, the Mercer factory has entered a car, the driver of which will be named shortly. Both Hughes and Jeffkins are being considered. Ralph Mulford is trying to arrange his dates so that he may appear on the Tacoma course. Armstrong, of Los Angeles, will drive a Napier and Sebastian, a Canadian pilot of considerable note in the Northwest, will steer a big Cole machine owned by S. R. MacClinton, of Vancouver, B. C. Wells, of Los Angeles, will appear behind the wheel of a big Stoddard-Dayton. The light car events are showing a big entry list. Among the latest entries is a Reo the Fifth, driver unnamed which will be in event No. 1, for cars of less than 230 cubic inches. A model T-Ford roadster, owned by W. C. Baldwin, manager of the Tacoma Ford agency, will be driven by Frank Bennett, one of his aides, and F. L. Gray, a one-armed mechanician.

Great progress has been made in preparing the course. Many of the little hummocks which marred the otherwise naturally level highways have entirely disappeared. A hundred men with half as many plows and teams have been put on the work.

will meet in this city for the purpose of discussing the highways of the state and adopting plans which will improve conditions.

Charles M. Robinson, legal advisor of the Connecticut Automobile Association, in speaking of the war against the State Highway Department said: "It is about time that peanut politics were weeded out of the State Highway department and the interests of the public and good business management substituted.

"The state tax on automobiles this year will amount to $250,000 and under the present conditions it is nothing more or less than a hold-up. It is a double tax in the first place—absolutely unjust—and in the second place the money thus obtained is frittered away on antiquated road building.

"The inspectors who stand between the public and contractors are in many instances political heelers, and the system is a farce.

"The Republican powers turned down Governor Baldwin and sustained Highway Commissioner James H. Macdonald. At the next election 15,000 automobilists will be heard from."

## Seventeen Races at Old Orchard

OLD ORCHARD, ME., June 8—Entry blanks for the races to be held on the beach here July 4, 5, 6, have been issued, the program calling for five races each the first two days and seven events the last day, making a total of seventeen. The distances are 5 and 10 miles in the greater number of events and each day's program ends with a 100-mile race. The beach will be in better shape this year as the officials have started to stake out a course that will give as much mileage as possible consistent with safety.

ST. LOUIS., June 8—The St. Louis Automobile Manufacturers and Dealers' Association will hold a three-day reliability run the first week in August. The event will probably be over a route from St. Louis north in the state as far as Kirksville and return over another route. A tour through Little Egypt or lower Illinois is being considered, however. The probabilities are that the Missouri route will be taken, as Illinois roads are too bad.

## Maxwell Mercury Wins Prize

HARRISBURG, PA., June 10—The first recreation run of the Motor Club of Harrisburg was held last Wednesday to the Lancaster Automobile and Horse Show, at Lancaster. Twelve cars contested in the hidden checker contest. The contesting cars were sent away from the club's headquarters at the Hotel Dauphin at 10 o'clock and they were checked en route at Elizabethtown and Mt. Joy.

The day was an ideal one for an automobile contest and all who made the trip thoroughly enjoyed it. The roads between Middletown and Elizabethtown were in a miserable condition, as no work had been done on them since last year. All of the cars were within 3 minutes of the official time at the checking stations, with the exception of an Oldsmobile driven by G. W. Starry, which finished with a light penalty due to tire troubles. After arriving at Lancaster the cars were checked at the Stevens House and after lunch all of the motorists visited the show, held on the Lancaster fair grounds. L. F. Bass, in a Maxwell Mercury, won first place in the run. Robert McCormick, in a Mitchell roadster, was second, and J. D. Sankey took third place in a Cadillac touring car.

WASHINGTON, D. C., June 8—The annual endurance run of the Automobile Club of Washington under Grade 3 rules has been postponed from June 11-13 to June 18-20.

The work of blazing the route of the run was completed June 4, when the pathfinders in a Cole arrived in Washington after laying out a 436-mile route embracing Hagerstown, Md., Harrisburg, Allentown, Philadelphia, Wilmington, Del., and Baltimore. The noon stops will be in Hagerstown and Allentown, and Havre de Grace. Night stops Harrisburg and Philadelphia.

# Severe Sociability Run

## Of Twenty-two Competing Cars in Arizona Run but Seven Reached Prescott by Midnight

### Only Three of Eleven Entrants for Studebaker Cup Reached Night Stop on Time

PHOENIX, ARIZ., June 7—With twenty-two Studebaker cars and 106 persons participating, Arizona's first sociability run is in progress. Bound for the Grand Canyon, the cars left Phoenix last Tuesday morning, and arrived at the Grand Canyon last night. Some trouble was encountered the first day, on the road between Phoenix and Prescott, but beyond that point there has been scarcely a mishap.

Only seven of the cars arrived in Prescott before 12 o'clock Tuesday night. A number ran out of gasoline on Copper Basin hill, 18 miles south of Prescott. A rescue car, laden with gasoline, was sent out from Prescott at 1 o'clock Wednesday morning. Daylight was beginning to peep over the eastern hills before the last machine rolled into Prescott.

Oddly enough, a repair car was the only one that was disabled by anything except a puncture or shortage of gasoline. The driver gave up his lights to another machine and in the darkness he ran off the road into a gully, breaking two springs.

Eleven cars were entered in the run to compete for the handsome silver cup offered by the Studebaker Corporation. They were given 13 hours to make the journey to Prescott. The press car, pacemaker and three of the eleven machines finished within that time. Graham Reibling, of Prescott, made the best record, covering the 130 miles in 10 hours and 47 minutes. A. D. Aiken, of Wickenburg, made a record of 12 hours and 10 minutes, while John Northcutt, of Phoenix, negotiated the distance in 12 hours and 53 minutes. All drove E-M-F machines.

Several miles out of Prescott the leading cars were met by Prescott autoists, who escorted them into the city. There the leaders were greeted by a brass band. The pacemaker, press car and Reibling's machine arrived close together.

In the expectation that all the cars would arrive early in the evening the people of Prescott had arranged an elaborate entertainment in honor of the travelers. The entertainment, which was in the nature of a smoker and spread, was held in the capacious quarters of the Yavapai Club. Addresses on automobiling and good roads were delivered by T. G. Norris, president of the Good Roads Association, of Arizona; Paul Burks, president of the Prescott Automobile Club; Dr. John W. Flinn, president of the Prescott Chamber of Commerce; L. J. Ollier, Pacific coast sales manager of the Studebaker Corporation; Eugene B. O'Neill, of Phoenix, and Harry Heap, of the Yavapai County Board of Supervisors.

The road from Phoenix to Prescott is the most difficult of the entire route. There are many miles of smooth going across the mesas, but there is also much sand and in places gulleys have been washed across the road by spring rains. From Prescott on, however, the road is uniformly good. The citizens of Prescott did much work on the highway from their city to Ash Fork, preparatory to the coming of the motorists.

Wednesday afternoon the run to Ash Fork was made without incident. The night was spent there and the final lap to the canyon was covered the next day. Tomorrow the return trip, by way of Flagstaff, will begin.

Much interest in touring has been aroused in Prescott by this run. As a result a sociability run from that city to the canyon, open to all makes of cars, has been arranged. The run will start Sunday and the canyon will be reached Monday. Wednesday the Prescottites will start home.

# Legal News of the Week

## Court of Appeals Upholds Lower Tribunal in Finding for Weed Chain Company as Against Atlas

### Weed Also Wins From Willis—Mosler Brings Suit for Spark-Plug Infringement

FULLY sustaining the decree of the United States District Court, which awarded an injunction, accounting and damages to the Weed Chain Tire Grip Company against the Atlas Chain Company, the United States Circuit Court of Appeals has rendered its opinion on Parsons non-skid patent, 723,299.

The contention of the Atlas company was that the Parsons patent applied only to tire chains that hung loosely upon the tire and that as the Atlas chains are fitted with tension springs and lever hooks for the purpose of fitting the Atlas grips snugly against the tire, the chains so provided do not come within the terms of the patent in suit.

The court held that such chains as that of the defendant company need not necessarily be used in accordance with the instruction book furnished with them, and if not so used, the chains would creep on the tire exactly as would the Weed chain. Judge Coxe covers this point by saying: "When the defendant sells a device, the natural, usual and preferential use of which constitutes an infringement, it is no answer to assert that it is possible, by limiting its efficiency, to use it innocently."

The opinion followed the substance of the decisions rendered in the Pitts, Pursell and Asch cases and to some extent the procedure in the western cases against Johnson and Channon, in all of which cases it was shown that the defendants advised purchasers to anchor their grips to prevent creeping. In each case it was shown that neglect to use the anchoring devices would allow the chains to creep and that the application of the anchoring device was not necessary in order to use the chain.

The text of the court's opinion is as follows:

UNITED STATES CIRCUIT COURT OF APPEALS
FOR THE SECOND CIRCUIT.

THE PARSONS NON-SKID COMPANY, LIMITED, WEED CHAIN TIRE GRIP COMPANY, and HARRY D. WEED,
Complainants-Appellees,
against
THE ATLAS CHAIN COMPANY,
Defendant-Appellant.

Before
COXE and NOYES,
Circuit Judges,
and
HOUGH,
District Judge.

On appeal from an order entered in the District Court for the Southern District of New York, March 14, 1912, granting a preliminary injunction restraining the defendant from infringing Letters Patent granted to Harry Parsons March 24, 1903, for an improved "Antislipping and antipuncturing device for the tires of vehicles and for like purposes."

J. EDGAR BULL, for Appellant.
FREDERICK S. DUNCAN, for Appellees.

COXE, J.

The device which is the subject of the patent consists of a network of rings or strips of metal or a series of small chains or bands fitting loosely over the periphery of the wheel or passing from side to side across the tire and prevented from coming off by two rings, hoops or their equivalent, such rings, or one of them, being provided with means of attachment and detachment. The said rings are smaller in diameter than the periphery of the wheel and cannot come off accidentally. The rough surface provided by the network, chains, or the like, will prevent the slipping of the tire on the road and the consequent skidding of the car.

It is probable that the genius of the inventor will yet devise a more simple and efficient method of preventing the skidding of rubber tired vehicles, but, so far as the art has developed, Parsons appears to have been the first to provide means which minimizes the greatest danger which confronts the traveler in such vehicles.

The first claim of the patent which is typical of the other five is as follows:

> "Antislipping or protecting means for the peripheries of wheels, pulleys or the like, comprising attaching elements at opposite sides of the wheel, and an antislipping or protective medium secured to the attaching elements and extending across and around the periphery of the wheel, said parts being disconnected from though retained on the wheel whereby the antislipping or protective medium is free to move or shift its position around the periphery thereof."

Few patents have been so persistently and vigorously attacked and in each instance, with one exception, it has been sustained. The Circuit Court of Appeals for the Seventh Circuit at first held the patent invalid, but upon reargument held it valid and infringed. There can be no question, therefore, upon this appeal, as to the proposition that Parsons has made a useful and meritorious invention; being the first to construct a successful apparatus to prevent skidding, detachable from the rubber tire. The "Scientific American" articles add nothing to what was considered by the Courts in the Seventh Circuit. The Thomson patent on which the articles are based was there in evidence and found to be irrelevant. From such an inadequate understanding of the Thomson machine as we are able to get from the present record, we are not disposed to differ with this conclusion.

In such circumstances it is the duty of the court to place upon the claims a construction commensurate with the invention. It is said that the words, "fitting loosely over the periphery of the wheel," in the description and the words, "free to move or shift its position around the periphery thereof," in the claims, require a construction that the cross chains shall be so loose that they must necessarily hang in loops from the supporting wires and be successively laid down upon the ground immediately in front of the tread of the tire. There is nothing in the prior art requiring such a construction, and, if adopted by the Court, it will enable any chauffeur who has wit enough to contract the circumferential support so that the cross chains are drawn more tightly across the tire to evade the patent with impunity. *Loosely* is here used in contradistinction to *tightly* and means that the cross chains must be sufficiently loose to secure the advantages of the invention, viz., to creep and not pound the road as they would do if rigidly fastened to the wheel when traveling at a high rate of speed.

That the defendant's grip creeps is expressly admitted, as is also the contention that if by use the cross chains become loose so that they are free to move or shift their position around the periphery of the wheel, the device becomes an infringement. It is also clear that the defendant's device may be so adjusted that the chains are held loosely, and if the driver of the car becomes satisfied that the best results can only be attained by a loose adjustment it is more than probable that he will adopt that method. In other words, the defendant places in the hands of the chauffeur an apparatus which may infringe or not, according to whether it is wound up loosely or tightly. Should it appear that the best results can be obtained only by a loose adjustment it is hardly probable that the chauffeur will take the additional time and trouble to secure an inferior result. If experience shows that a loose adjustment prevents skidding and saves the wear and tear of the tires, it is safe to assume that it will be adopted, notwithstanding directions to the contrary. When the defendant sells a device the natural, usual and preferential use of which constitutes an an infringement, it is no answer to assert that it is possible, by limiting its efficiency, to use it innocently.

We cannot avoid the conclusion that the changes made by the defendant are attempts to secure the fruits of Parsons' invention by alterations in non-essential details.

The history of the protracted litigations shows that, with few exceptions, the courts have regarded the Parsons invention as a meritorious one and have given it a construction sufficiently liberal to include all changes of form which accomplish the same result in substantially the same way.

The defendant was practically selling the patented grip in all its essential details, but in addition, it provided tension springs with directions to make a tight fitting grip. These sprngs may or may not be used, and the directions may or may not be followed, but even if they are followed the same result is obtained, only in a less degree; the circumferential creeping of the cross chains is not so marked.

Believing the invention to be a meritorious one, we decline so to limit the claims as practically to invalidate the patent.

The order is affirmed.

—

## Mosler Plug Suit in Court

Spark-plugs were discussed from various angles in the United States District Court this week when the patent suit of A. R. Mosler & Company against John Lurie, former president of the Auto Supply Company, as nominal defendant, was presented. The alleged infringement is of the Canfield patent, covering the type of construction in a spark-plug which has an air-chamber around the electrode.

William A. Redding presented the case for the complainant. The opinion of the court is expected before the annual vacation period.

—

## Substitute for Oldfield Bill

WASHINGTON, D. C., June 10—Chairman Oldfield, of the House Patents Committee, states that he expected to introduce a substitute for the patent bill now before Congress, and introduced by him, within a few days. His committee has had numerous sessions recently at which the suggestions made during the long-drawn-out hearing as to amendments to sections 17 and 32, the compulsory license and the re-sale features, were discussed. That there will be changes made in the substitute of a decided character Chairman Oldfield admits, but he, of course, does not indicate the character of these.

—

## New Dyer Licenses and Suits

Orders for decrees *pro confesso* have been entered in the cases brought by the Enterprize Automobile Company, of Hoboken, against George Rudy and Schuyler S. Schifflein charging infringement of the Dyer change gear patents. The defendants

failed to show cause why such action should not be taken against them.

An interlocutory decree for injunction and accounting has been presented in the case of the same complainant involving the same claims against Jacob Stein.

Ducasse & Company, importers of the Darracq line and general agents for that company in New York, have taken out licenses to import and sell Darracq cars under the same patents.

Individual licenses have been taken out by Ralph L. Spotts, two Züst cars; New Harlem Casino Taxi Service, Sultans; Charles Mashensky, Sultan; Martha A. Gaines, Charron; Samuel Goldfarb, Sultan; John J. Ryan, Sultan; Rapid Delivery Express Company, Cortland.

New suits have been filed against the following: George Stadtlander, Cortland; Joseph L. Graf, Lancia; William A. Campbell, Sultan; John Kostukevich, Sultan; Fred H. Berges, Dragon; Edwin S. Fitch, Lancia; Hector Claisso, Sultan; J. Fred Pierson, Jr., S. P. O.; John H. Meyers, Isotta; William Thiel, Sultan; William Whitman, Jr., Isotta.

## Weed Wins from Willis Company

Final decree in the case of the Weed Chain Tire Grip Company against the E. J. Willis Company, Boston, Mass., has been entered in the United States District Court, assessing the damages to complainant at $1,000. Appeal from this order is being prepared and the case is regarded as a test of the patents in suit.

Willis is a large dealer in automobile supplies and was sued by the Weed company for handling a chain which it is alleged was an infringement. On the original hearing in the district court Judge Lacombe ordered an interlocutory decree from which an appeal was taken at once. This appeal has been withdrawn so that a final decree could be entered stipulating the amount of damages agreed upon by the litigants.

Suit has just been entered in the United States District Court by the Weed Chain Tire Grip Company against Charles Weiland, a jobber in sundries, alleging infringement of the Parsons patent. Weiland was made defendant in a similar suit last month in which the adjuster patent was the subject matter.

Judge Lacombe signed a temporary order restraining the defendant from violating the patent rights of the complainant pending the disposition of the action. The matter has been set down for hearing on Friday.

## Truffault Moves Against Foster

Injunction has been granted against the New York agent for the Foster Shock Absorber Company in the action brought by the Hartford Suspension Company on the Trauffault patent embodying the rotary friction principle. The suit was directed at the agent, but it was of much wider scope.

Further action is probable in this case as it can be taken to the United States Circuit Court of Appeals in regular order.

The taking of testimony in the action of the Hartford Suspension Company against the Connecticut Shock Absorber Company is scheduled to begin next week. Argument of this case will probably be made in October.

## Stromberg-Flechter Suit Dismissed

Suit entered last winter on behalf of the Stromberg Motor Devices Company against L. V. Flechter and the Flechter Carbureter Company, of New York, has been dismissed by Judge Hand, of the United States District Court. The complaint charged infringement by the Flechter company of the patents owned by the Stromberg company covering the two-spring principle of carbureter construction.

Albert M. Austin, attorney for Flechter, made out a strong case in defense and it was on his motion to dismiss, concurred in by the legal representatives of the complainant, that the court acted. The defense was that the principle involved in suit lacked patentable novelty.

# Klaxon Suit Withdrawn

## Action Against Charles E. Miller Discontinued When Latter Showed He No Longer Handled Product

### Final Decrees Handed Down in Carlson vs. Maxwell and Republic vs. M. & W.

SUIT entered recently on behalf of the Lovell-McConnell Manufacturing Company against Charles E. Miller, seeking an injunction to prevent the defendant from handling the Klaxon horn and the Newtone horn at the same time by forbidding it to deal in one or the other and asking damages under a license granted to the defendant, has been withdrawn from the United States District Court without prejudice.

Charles E. Miller was regularly licensed to sell Klaxons and Klaxonets by the complainant, the license containing the regular and usual clauses acknowledging the validity of the patent rights in question. As the complainant is now prosecuting an action against the makers of the Newtone horn, the question was raised as to the status of a licensed dealer who handled goods alleged to be infringements.

The defendant came into court last week before argument of the main case had been set down for hearing and presented affidavits to the effect that the company had abandoned all business in the Klaxon products. According to the statement of Charles E. Miller, the complainant offered to re-purchase all the unsold stock of the defendant and the settlement is reported to have been on a basis of about $2,000.

As the object of the action was satisfied by this means, the suit was discontinued on motion of George Cooper Dean, attorney for the Lovell-McConnell Manufacturing Company. Herman Goldman handled the case for the Miller company.

The suit attracted considerable interest among the members of the automobile industry as well as the patent bar on account of the fact that it was brought against a licensee by the licensing company because the licensee handled a line of goods in process of litigation as to its patent rights, the action with regard to which had been brought by the licensing company.

## Mandate in Carlson vs. Maxwell

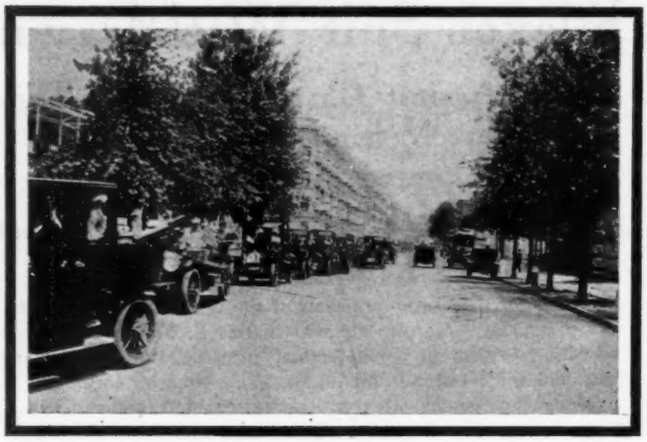
Mandate of the United States Circuit Court of Appeals ordering a permanent injunction and providing for a final decree in the case of the Carlson Motor and Truck Company against the Maxwell-Briscoe Motor Company has been handed down to the United States District Court.

Last week a motion to modify the injunction was argued before Judge Hazel at Buffalo, but it was not entertained. The rendering of the mandate of the United States Circuit Court of Appeals was delayed in order to allow the attorneys for the defense to present their arguments for modification of the court order. E. W. Marshall represented Carlson and Edmonds & Edmonds acted for the defense.

## Final Decree in Republic vs. M. & W.

Order for a final decree in the case of the Republic Rubber Company against Morgan & Wright, in which its decision was favorable to the latter, has been sent down by the United States Circuit Court of Appeals. The decree itself will follow as a matter of course unless a motion to reargue is entertained.

The court order was of such a sweeping nature that the status of other non-skid patents is arousing much interest among the members of the patent bar. The court held the opinion that the Mell patent was based intrinsically upon the old Healy bicycle tire device, and in the opinion of patent lawyers the decision goes to the foundation of all patents based on the same idea.



Cars passing through Brooklyn en route to Land of Delight

These 10-ton trucks never carried more precious loads

# 450 Car Loads of Orphans

## New York Association Entertains 4,096 Parentless Tots at Coney Island at Eighth Annual Outing

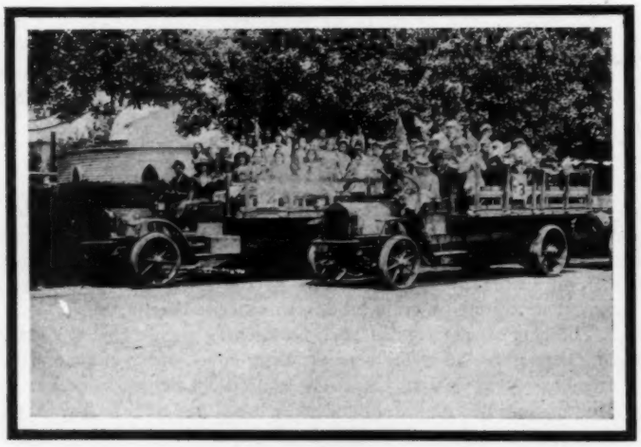
OF the eight annual Orphans' Days which New York has witnessed, none was more enjoyable than that which was held on June 6 under the auspices of the Orphans' Automobile Day Association of New York. Over 4,000—4,096, to be exact—hilarious, laughing, shouting, singing, whistling youngsters were conducted to Coney Island in 196 touring cars, 180 taxicabs and 70 trucks. Some of the children, who were experiencing their first ride in a real automobile, were speechless during the entire run, while the older and more experienced in such matters furnished the noise which must necessarily go with such an outing.

The outing, which was originated 8 years ago by the Motor Club of America, and which has since spread to many cities throughout the country, was under the direction of Mrs. J. D. Smith, president of the association, while the chief marshall, Senator W. J. Morgan, and his assistants, Charles Dieges and Col. K. C. Pardee, ably performed their duties and succeeded in piloting the caravan down through Manhattan without a hitch.

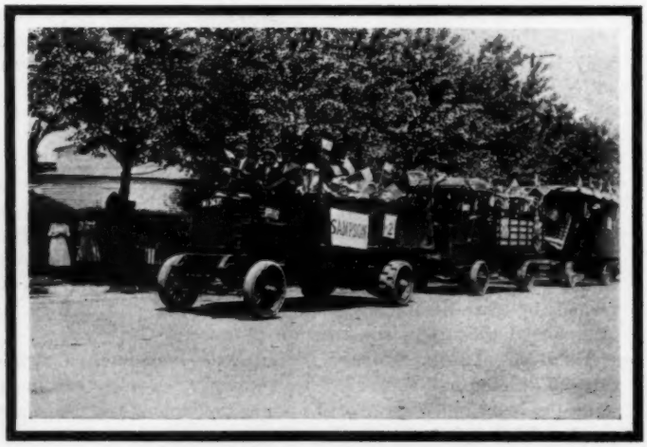
No less a personage than Rhinelander Waldo, Police Commissioner of New York, reviewed the parade at Washington Square, while a squad of traffic police on motorcycles cleared the way for the long column and led it down through Broadway, Fifth avenue, under the Washington Arch, through the Bowery and to the Williamsburg Bridge. Then they were turned over to the Brooklyn police, and away they went, bowling over the Brooklyn boulevards, down Ocean Parkway to Coney Island, every automobile and truck looking for all the world like the home of the old woman who lived in a shoe.

But the delights of the ride faded in the minds of one and all when the amusement places of the Island hove in sight. Luncheon came first after their arrival, Peter Doelger, the capitalist and brewer, acting as host at Kaiser Garten Park. They were so hungry! There were innumerable little round tables around which the children swarmed. Every little boy and girl carried a flag and wore a big Orphans' Day button, so that the grown-ups who came along to take care of them could send all the green buttons in one direction, all the red in another and the blue still another way. There was a package of crispettes for each child, a special gift of Mrs. Smith each year. Every youngster was provided with an orange, and many were the odd contortions gone through by the little ones in biting or otherwise puncturing the thick orange skins. One hundred and fifty pounds of chocolate, the gift of Mrs. L. M. Borden, added still more to the enjoyment of that most extraordinary luncheon. Some of the children were at a loss to know whether their rolls should be eaten with a spoon or not. They were greatly relieved when told that they might eat them with their fingers.

Luncheon over, Steeplechase Park was theirs for the afternoon. Not only could they go in free, but they could do any of the jolly things to be done—not once, but just as many times as they pleased. A large sign near the entrance proved that they were privileged to be there. "This great palace was built by George C. Tilyou, but today it is owned by the orphans of New York City," it ran.



Arrival of the White commercial fleet at Coney Island




The Sampson contingent took care of a host of little ones

# Road Men Honor Jeffreys

## English Expert Is Here to Boom London International Road Congress—Outline of Convention Program

THE banquet tendered to W. Rees Jeffreys, honorable general secretary of the Permanent International Association of Road Congresses, London, England, on the evening of Wednesday, June 5, by the American Road Builders' Association was a great success. The function was held at the Astor. Mr. Jeffreys is an expert on the subject of road-building and is visiting this country for the purpose of arousing interest in the Third International Road Congress, which is to be held in London, England, June 23-27, 1913.

The office of toastmaster at the banquet was ably performed by Nelson B. Lewis, chief engineer of the Board of Estimate of Greater New York, who introduced Mr. Jeffreys. After a few general remarks Mr. Jeffreys called attention to the fact that in America the road problem is much more complex than in Europe, inasmuch as the European roads are, for the most part, old established highways, which have been in use for many years and which now require only to be maintained, while practically all the American roads are comparatively new, many of them just built, and there are still hundreds of thousands of miles of highways to be built, thus adding the problem of construction to that of maintenance.

Mr. Jeffreys touched on the tremendous amount of work that is in store for the road builders of the United States, pointing out the rapid increase in the use of automobiles and motor trucks throughout the country. He predicted that, in the course of a few years, the motor trucks will far outnumber the pleasure cars on our roads, as the business men come to realize their advantages more fully and the improvement in road conditions permits of the expansion of the commercial car field.

The speaker then told of the road congress to be held in London next year and of the topics on the various phases of road construction, each of which, he hopes, will be treated in a paper by a representative of each country sending delegates to the congress. In this connection he urged that Congress, the state legislatures and the governing bodies of all the large American cities should send representatives.

The subjects to be discussed at the congress are divided into two sections, one comprising those relating to the Construction and Maintenance of Roads and the other those pertaining to Traffic and Administration. The first question to be considered covers the Planning of New Streets and Roads. This will be followed by Types of Surfacing to Be Adopted on Bridges, Viaducts, etc., and this in turn by Improvements in Machinery Used in the Construction and Maintenance of Macadamized Roads. Another topic to be considered covers the Construction of Macadamized Roads Bound with Tarry, Bituminous or Asphaltic Materials, and the reports to be made thereon will consist of data obtained from practical experience. The Construction of Waterbound Macadamized Roads and the Technical and Economical Study of the Comparative Advantages of Different Types of Roads, considered with regard to their suitability for different varieties of traffic and to their economy, will be considered, as will the subjects of Wood Paving and the Various Types of Stone Paving in Use.

Dinner tendered W. Rees Jeffreys by American road experts at the Hotel Astor on June 5

Among other subjects to be considered at the congress will be Traffic and Administration, Methods of Lighting, Various Causes of Wear and Deterioration of Roadways, Regulations for Fast and Slow Traffic on Roads, Direction and Distance Sign Posts and Self-Propelled Public Service Vehicles. Authorities in Charge of the Construction and Maintenance of Roads, Functions of Central Authorities and Local Authorities, Finance of the Construction and Upkeep of Roads and Provision of Revenues, the Qualifications of Engineers and Surveyors in Charge of the Construction and Maintenance of Roads and the Wages and Conditions of Service of Foremen and Roadmen will come up for consideration, as will the Statistics of Cost of Construction and Maintenance and the Terminology Adopted, or to Be Adopted, in Each Country Relating to Road Construction and Maintenance.

After Mr. Jeffreys had outlined the program of the congress in an interesting way, other speakers took the floor, among whom were William H. Burr, professor of civil engineering at Columbia University; Logan Waller Page, director of public roads, United States Department of Agriculture, and W. R. Shattuck, chairman of the Good Roads Committee of the A. C. A.

# Stoddard and Edwards Will Control Simms

## Makers of the New Knight Edwards Car Will Reopen Factory and Begin Making Magnetos

### Expect to Make 100,000 Yearly—Same Concern Purchases Longest Truck Plant

NEW YORK, June 12—The $1,000,000 plant of the Simms Magneto Company, at Bloomfield, N. J., which was erected last year but closed since November because of lack of capital, was last week secured by the Asset Realization Company, a New York concern which makes a business of securing such plants. Scarcely had this concern acquired it than it entered into a working agreement with C. G. Stoddard and H. J. Edwards, of the Edwards Motor Car Company of this city to open the factory and start as soon as possible the making of Simms magnetos in America. The operating company will probably be known as the Simms Magneto Company, with C. G. Stoddard as president and H. J. Edwards as consulting engineer. While Messrs. Stoddard and Edwards have taken the active control and direction of this plant, it will not in any way affect the newly-formed Edwards Motor Car Company, which is headed by Messrs. Stoddard and Edwards and which secured a license to build the Knight sleeve-valve motor for the Edwards car to be announced shortly. Further progress with the car company has been made in that the company has decided to permanently locate in the East. It is the purpose of the company to rent a factory for the 1912 output and then have its own factory ready for the following season.

In taking active control and management of the Simms Magneto Company, President Stoddard expects to get the factory up to capacity, which is 100,000 magnetos per year. There is stock on hand for 3,000 or 4,000 magnetos. With the purchase of the plant go all of the American patent rights for the manufacture of these magnetos together with the rights of using all improvements and new patents that may be secured. The Simms plant is said to be one of the most modern in the country. It is filled with all that is latest in the machinery line and has a complete set of jigs and fixtures for the manufacture of all magneto parts.

### Company's Other Lines of Activity

Under the old régime, the concern was capitalized at $1,000,000 which was all common stock paid up. Of this amount, $750,000 went into plant and equipment and the remaining $250,000 was in payment for patent rights and other privileges. Under the new organization, $500,000 of preferred stock may be issued at once, to provide ample operating capital. While Mr. Stoddard will be president, the other members of the board and officers are not yet determined upon, but it is certain that the Asset Realization Company will be represented on the board.

An informal meeting of the stockholders is to be held today to consider carefully the affairs of the company, both past and present; to decide whether the old company shall be liquidated and a new company organized; and to determine upon a preferred stock issue for raising the necessary amount of cash as working capital.

The working agreement in the Simms factory is but one of the activities of the Edwards Motor Car Company and its moving spirits, Messrs. Stoddard and Edwards. Three weeks ago this concern purchased the truck factory and patents of the Longest Brothers Company, Louisville, Ky., which for 3 years has been conducting experimental work on a gasoline motor truck. Three or four of these trucks have been in use in the big cities for over a year and have given entire satisfaction. It is the purpose of the Edwards company to install its Knight type of sleeve-valve in this truck and market it for the 1913 trade. The Longest factory at Louisville is little more than an experimental shop from which half a dozen trucks have been produced. Because of this, the Longest truck will be produced in the same factory with the Edwards car. In the meantime an order for new trucks is being pushed through the Louisville plant. With the new plant in operation, the three-fold activities of the company will be the Edwards car, Simms magneto and Longest truck.

## Adrian Wants to Keep Lion Plant

ADRIAN, MICH., June 10—Adrian citizens will fight to the last ditch to hold the Lion Motor Car Company, whose local plant recently was destroyed by fire with a loss of approximately $350,000. For the purpose of preventing the removal of the company to Detroit the citizens have offered to pledge $100,000 or more in stock subscriptions providing the company will remain here. The Board of Commerce of Detroit also has been engaged in negotiations with the company for the removal to that city. The officers of the company have not decided upon their future plans as yet.

According to Vice-President Fred Postal, of Detroit, the company's net loss occasioned by the fire will approximate $150,000. The company is capitalized at $360,000, of which about $240,000 has been paid into the treasury in cash.

## Market Changes of the Week

Slight advances developed in the metal market during the week, so far as copper and tin were concerned, while lead fell off a little. Among the interesting developments of the week were the May statements of the United States Steel Corporation and of the Copper Producers.

Most petroleum brands advanced from 3 to 5 cents on Wednesday, including Pennsylvania crude. Other oils and lubricants remained unchanged with few exceptions.

The rubber market witnessed renewed activity and a consequent advance of prices for fine up-river Para. Opening at $1 07 1-2 on Wednesday, it advanced to $1.09 on Friday and again to $1.11 on Monday. It closed firm and with a good demand. The price range for the week follow:

| Material | Wed. | Thurs. | Fri. | Sat. | Mon. | Tues. | Week's Change |
|---|---|---|---|---|---|---|---|
| Antimony, per lb. | .07 | .07 | .07 | .07 | .07 | .07 | ..... |
| Beams & Channels, 100 lbs. | 1.36½ | 1.36½ | 1.36½ | 1.36½ | 1.36½ | 1.36½ | ..... |
| Bessemer Steel, Pittsburgh, ton | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | 20.00 | ..... |
| Copper, Elec., lb. | .17 | .17 | .17¼ | .17¼ | .17¼ | .17¼ | + .00¼ |
| Copper, Lake, lb. | .17⅛ | .17⅛ | .17⅜ | .17⅜ | 17⅜ | .17⅜ | + .00⅛ |
| Cottonseed Oil, June, bbl. | 6.70 | 6.70 | 6.80 | 6.75 | 6.77 | 6.88 | + .18 |
| Cyanide Pot-ash, lb. | .20 | .20 | .20 | .20 | .20 | .20 | ..... |
| Fish Oil, (Menhaden) | .40 | .40 | .40 | .40 | .40 | .38 | — .02 |
| Gasoline, Auto, 200 gals. @ | .19 | .19 | .19 | .19 | .19 | .19 | ..... |
| Lard Oil, prime | .85 | .85 | .85 | .85 | .85 | .85 | ..... |
| Lead, 100 lbs. | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.20 | — .05 |
| Linseed Oil | .78 | .78 | .79 | .79 | .79 | .79 | + .01 |
| Open-Hearth Steel, ton | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | 21.00 | ..... |
| Petroleum, bbl., Kansas crude | .68 | .68 | .68 | .68 | .68 | .68 | ..... |
| Petroleum, bbl., Pa., crude | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | 1.60 | ..... |
| Rapeseed Oil, refined | .68 | .68 | .68 | .68 | .68 | .68 | ..... |
| Rubber, Fine Up-river Para | 1.07½ | 1.07½ | 1.09 | 1.09 | 1.11 | 1.11 | + .04½ |
| Silk, raw Ital | .... | .... | .... | .... | 4.15 | 4.30 | + .15 |
| Silk, raw Japan | .... | .... | .... | .... | 3.72½ | 3.72½ | ..... |
| Sulphuric Acid, 60 Beaumé | .99 | .99 | .99 | .99 | .99 | .99 | ..... |
| Tin, 100 lbs. | 45.87½ | 46.30 | 47.50 | 47.75 | 47.75 | 47.75 | +1.87½ |
| Tire Scraps | 08½ | .08½ | .08½ | .08½ | .08½ | .08½ | ..... |

# Trade Year's End Finds Gotham's Row Hopeful

## Though March Was a Total Loss, Makers and Dealers Are About Up to Schedule

### Low-Priced Car Sales Have Been Tremendous—Big Cars Also Sold Well

DESPITE the loss of 4 weeks' business during March, Automobile Row is cleaning up the fag end of the 1912 business about on schedule. There are a few exceptions, but in the main the dealers are almost clear at this time. Compared with the corresponding date last year, the situation shows some improvement but the same mistakes have been made in 1912 that were made in other years, although the results are not likely to be more serious than they were then.

In 1910, slow manufacturing resulted in a considerable surplus in one or two instances. In 1911 the same fault could be found and this season it is unlikely that all the manufacturing companies can dispose of all their stock at the end of the manufacturing season.

In 1910, a new condition was encountered in the industry. In brief, it was the coincidence of an unfavorable selling season with congested manufacturing. In 1911 the selling conditions were improved and manufacturing was conservative, with a few notable exceptions. In 1912, the bad March and freight congestion during the weeks when a large fraction of the distributing usually takes place caused the downright loss of at least 4 weeks of business.

The big cars with comparatively small total production and reasonably steady patronage have had a good year, particularly in and about New York. With only one notable exception, the production of high-priced automobiles this year has not exceeded that of 1911. In several cases the output was reduced at the factory. In the high-medium class, practically the same conditions apply. In the middle class, or $2,000-division, there has been some increase. In the low-medium class, as a rule, the production has been large but conservative and 3,000 or 4,000 cars of this class represent about the total stock on hand of the factories and dealers.

In the low-priced lines the season has been splendid. The production has been tremendous and the sales have followed suit on a scale never approached before.

With but 2 weeks left of the manufacturing season it is probable that the total number of 1912 automobiles still to be marketed will not exceed 15,000 all told.

Even at that, all the profits of the business for the year are represented in this fraction. If the cars are listed at an average of $1,000, the probable stock stands for $15,000,000.

This is moving fast now and by July 15 it is expected that the whole production will be liquidated.

The early announcement of 1913 lines by a few companies and the silence of the majority about their models for next year simply mean that, in the cases of the few who have announced, the 1912 stock has been cleared at an extraordinarily early date, and in the instance of the majority it indicates a conservative conception of the industry.

A canvass of the various shops along the Row this week showed that it was possible to get delivery on the spot of two low-priced cars, three low-medium; one middle; one high-medium and one high-priced car. Last year at this time the situation was similar, except that only one low-priced, and no high-medium cars were available.

On the other hand there are four low-medium lines now that can not be purchased for delivery of 1912 models at all and in the same category may be placed two high, two high-medium and one middle-class make.

Taking into consideration the fact that March was a dead loss, the season of 1912 in the opinion of the Row is the best so far.

## Automobile Securities Quotations

The most notable occurrence in the automobile securities market during the week was the dip of United States Motor Company common and preferred. At the beginning of the week the common shares were quoted at 5 and were under considerable pressure. Then buying orders for a large block of this grade were spread around the market and the price steadily rose to 9 1-2. Selling pressure became intense at this level and the stock broke in big jumps until the shares stood at 1 bid for a short time on Monday. Since then there has been a gradual rise to 3 1-2, with a steady undertone. The preferred also fluctuated widely in response to the dealings in the minor issue. Rubber shares were quiet and steady. The prices for the week, and a comparison of the figures with those a year ago, are given in the following table:

| | 1911 | | 1912 | |
|---|---|---|---|---|
| | Bid | Asked | Bid | Asked |
| Ajax-Grieb Rubber Co., com | .. | .. | 110 | 115 |
| Ajax-Grieb Rubber Co., pfd | .. | .. | 90 | 97 |
| Aluminum Castings, preferred | .. | .. | 100 | .. |
| American Locomotive, common | 41½ | 42 | 42 | 42½ |
| American Locomotive, pfd | 108¾ | 109¼ | 106 | 108¼ |
| Chalmers Motor Company | .. | .. | 140 | 160 |
| Consolidated R. T. Co., com | 5 | 10 | 15 | 17 |
| Consolidated R. T. Co., pfd | 15 | 25 | 55 | 60 |
| Diamond Rubber Company | 270 | 273 | 370 | 380 |
| Firestone Tire & Rubber Co., com | 167 | 170 | 269 | 271 |
| Firestone Tire & Rubber Co., pfd | 103 | 105 | 106 | 108 |
| Garford Company, preferred | .. | .. | 99 | 101 |
| General Motors Co., common | 40 | 41 | 34 | 35 |
| General Motors Co., preferred | 80 | 81 | 74 | 75 |
| B. F. Goodrich Co., common | .. | .. | 81½ | 82 |
| B. F. Goodrich Co., preferred | .. | .. | 108½ | 109 |
| Goodyear Tire & Rubber Co., com | 218 | 221 | 269 | 271 |
| Goodyear Tire & Rubber Co., pfd | 101 | 102 | 100 | 105 |
| Hayes Manufacturing Company | .. | .. | .. | 104 |
| International Motor Co., com | .. | .. | 27 | 32 |
| International Motor Co., pfd | .. | .. | 90 | 94 |
| Lozier Motor Company | .. | .. | 45 | 55 |
| Miller Rubber Company | .. | .. | 159 | 161 |
| Packard Motor Co., preferred | .. | .. | 104½ | 106½ |
| Peerless Motor Company | .. | .. | .. | .. |
| Pope Manufacturing Co., com | 55 | 57 | 30 | 31 |
| Pope Manufacturing Co., pfd | 75 | 77 | 75 | 76½ |
| Reo Motor Truck Company | 8 | 10 | 8 | 10 |
| Reo Motor Car Company | 23 | 25 | 23 | 24 |
| Studebaker Company, common | .. | .. | 36½ | 38 |
| Studebaker Company, pfd | .. | .. | 95½ | 96 |
| Swinehart Tire Company | .. | .. | 100 | 105 |
| Rubber Goods Company, com | 85 | 88 | 106 | 107 |
| Rubber Goods Company, pfd | 100 | 103 | 100 | .. |
| U. S. Motor Co., common | 38 | 39 | 3½ | 4 |
| U. S. Motor Co., preferred | 80 | 81 | 11½ | 12 |
| White Company, preferred | .. | .. | 107½ | 108½ |

## Columbus After Lion Plant

COLUMBUS, O., June 10—Secretary F. H. Hysell, of the Columbus Chamber of Commerce has gone to Adrian, Mich., in an effort to secure the location of the new Lion Motor Car plant in Columbus. Since the plant was destroyed by fire the officers of the company have been looking around for another location.

The Columbus Chamber of Commerce has been offering $50,000 for the location of the plant in the Buckeye Capital. The company has been established for three years during which time it has won a wide reputation. The company has a capital stock outstanding of $350,000. There are from 300 to 400 employees.

## Overland Company to Expand

TOLEDO, O., June 8—Within a few days an application will be filed with the secretary of state by the Willys-Overland Company for the increasing of its capital stock from $6,000,000 to $15,000,000. Demand has increased to such an extent that an enlarged plant was imperative and the increase of stock was necessary in order to erect factory buildings and equip them. It is stated that 3,000 more men will be employed than at present and the pay-roll will be increased to $1,500,000 a month. Presi-

dent John N. Willys predicts an output for his concern of approximately 40,000 cars for the year beginning July 1. The Overland factory now occupies nearly 80 acres of floor space to which will be added 60 acres more on which the extensive additions will be erected, the site having been purchased this week.

It is the intention during the next year to add a smaller car than the present Model 59, which has been listed at $900, according to the statement of Mr. Willys. A full line of motor trucks to be manufactured by the Gramm company, of Lima, O., will be sold through the sales department of the Willys-Overland company. It is also understood to be the intention of Mr. Willys to add an Overland electric to his line, the plan being to have a line of cars for every Overland dealer to meet the demands of any prospective customer who enters his store. Mr. Willys will continue as president of the company and will retain in his own control the $10,000,000 worth of common stock, $5,000,000 worth being preferred 7 per cent. stock, which will probably be listed on the New York Stock Exchange.

## G. M. Truck Headquarters at Pontiac

PONTIAC, MICH., June 10—The main offices of General Motors Truck Company, which have heretofore been located in Detroit, will after June 17, be located at the Pontiac factory, where the lighter duty gasoline trucks and electric trucks are manufactured.

The General Motors Truck Company is a selling company for the truck produced at the Owosso and Pontiac factories, and the large and modern factory at Pontiac has been selected as headquarters for the executive offices.

## Vanderbilt-Grand Prix Details

MILWAUKEE, WIS., June 12—Approximately $17,000 in cash prizes has been hung up by the Milwaukee Automobile Dealers' Association for the four big road races, the Grand Prix, Vanderbilt, Pabst Blue Ribbon and Wisconsin Motor Challenge cup contests, in Milwaukee on September 17 and 21. This amount is nearly $5,000 more than that offered by the Savannah Automobile Club for the double bill at Savannah last fall. The prize list does not include a secret purse which will accompany the Pabst Blue Ribbon trophy.

Entries for all races will close Saturday, September 7, at midnight, 10 days before the running of the first events—the Vanderbilt and Pabst Blue Ribbon cup races, on September 17.

The official entry blanks will show that the race for the Grand Prix will be a free-for-all, non-stock chassis event, without restrictions, at 436.25 miles, or fifty laps of the 8.725-mile circuit. In addition to the Automobile Club of America's gold cup, there will be awarded to the winners the sum of $6,500, distributed as follows: First, $3,000; second, $2,000; third, $1,000, and fourth, $500.

The Vanderbilt cup race will be run under the rules of the A. A. A., and will be a Class C non-stock event, for cars of from 301 to 600 cubic inches piston displacement, at 305.375 miles, or thirty-five circuits of the course. The cash prizes, four in number, aggregate $6,500, as for the Grand Prix, and will be distributed in like manner.

The race for the Pabst Blue Ribbon trophy, which will be run in conjunction with the Vanderbilt, will be for Class C, non-stock cars, 231 to 300 cubic inches piston displacement. Division 3C, at 218.125 miles, or twenty-five circuits of the Vanderbilt course. The cash prizes will be awarded as follows: First, $1,000; second, $500; third, $250, and fourth, $125. In addition the Pabst trophy will contain a purse, the amount of which will not be known until the winning driver pries the sealed cover from the tube in the cup.

The Wisconsin Motor Challenge Trophy race will be for Class C, non-stock cars, Division 2C, 161-230 cubic inches piston displacement, at 174.5 miles, or twenty circuits of the Grand Prix course. It will be run co-incidentally with the Grand Prix. The cash prize list is the same as for the Pabst.

# Industry in Michigan

## Census Bureau Bulletin Shows Automobile Building First in Value of Products in that State

### In 1909 It Formed 38.8 Per Cent. of the Total—Detroit's Industrial Status

WASHINGTON, D. C., June 10—In a bulletin issued by the Census Bureau, Department of Commerce and Labor, relative to the leading industries of Michigan, and the comparative importance of each, the automobile industry comes first in the order of value of products. The report says:

"The manufacture of automobiles in Michigan on any considerable scale commenced in Detroit less than a decade ago, although it had been carried on to a limited extent prior to that time. The industry developed rapidly, and by 1904 Michigan had become the leading state in the manufacture of automobiles, which position it held in 1909. In 1904 Michigan contributed 26.6 per cent. of the total value of products for this industry for the country; in 1909 the proportion had increased to 38.8 per cent.

"The total value of products for this industry in Michigan in 1909 was $96,651,000, which was more than twelve times the amount reported for 1904, while the value added by manufacture in 1909 was over nine times that reported for 1904. Of the total value of manufactured products and value added by manufacture for the state in 1909, the automobile industry contributed 14.1 per cent. and 13.5 per cent., respectively, while of the total increase of $255,989,000 in value of products for all manufacturing industries in the state from 1904 to 1909, $88,654,000, or over one-third, was reported for this one industry."

## Accessory Branch Important

This classification also includes the manufacture of automobile parts and accessories, but this branch of the industry has become so interwoven with other industries that it is impossible to determine to what extent it is covered by the statistics for the automobile industry. A tabular summary gives the following:

| Industry. | Number of Establishments. | Wage Earners. Average Number. | Value of Products. Amount. | Value Added by Manufacture. Amount. | Per Cent. of Increase. Value of Products. 1904 1899 1909 1904 | Per Cent. of Increase. Value Added by Manufacture. 1904 1899 1909 1904 |
|---|---|---|---|---|---|---|
| All industries | 9,159 | 231,499 | $685,109,000 | $316,497,000 | 59.7 34.2 | 59.0 38.5 |
| Automobiles, including bodies and parts | 113 | 25,444 | 96,651,000 | 42,769,000 | 1,108.6 | 839.2 |

Compared with the average number of wage earners, due to the great number of the latter employed in establishments engaged in the manufacture of automobiles, the bulletin shows that the proportion of proprietors and officials in this industry is among the smallest in the state. Discussing the automobile industry from the Detroit standpoint, the bulletin continues:

"The manufacture of automobiles has become by far the most important industry of Detroit, accounting for 23.5 per cent. of the total value of the city's manufactures in 1909, as compared with 4.9 per cent in 1904. The value of the automobile output of the city in 1904 was $6,240,000, or 78 per cent. of the state total for this industry, and in 1909 it was $59,536,000, or 61.6 per cent. of the state total." Of the $16,567,093 reported as the total value of products manufactured in Lansing in 1909, about one-half was contributed by the automobile industry and mainly on account of the decided increase in this industry the city advanced from thirteenth place among the cities of the state in respect to value of manufactures in 1899 to seventh place in 1909.

# New Rotary Valve Motor

## Inventor W. N. Walker Claims It Has Fewer Parts Than Any Other Four-Cycle Type

### Balance of Valve Secured By Novel Means—Spark-Plugs on Side of Cylinder

A NEW rotary valve motor in which the valve is balanced against unequal pressure has been brought out by W. N. Walker, of Rome, N. Y. As shown in the illustration, the valve ports are contained in a long rotary sleeve which extends the length of the motor, giving a modified L-head construction. This cylinder, as is shown in the longitudinal cross-section herewith, is driven directly off the crankshaft, the rate at which it is driven being one-fourth that of the crankshaft. Other features of the construction of the motor do not differ materially from the ordinary poppet type. The position of the spark-plug may be noted, however. It is in the side of the motor opposite the valve port, as shown in the tranverse section of the motor.

Taking up the valve in detail, the most important feature in connection with its construction is the method used to secure balance against enequal pressure on the long, cylindrical sleeve. This has been the principal objection to this type of motor as the large amount of friction caused by improper balancing has led to heating and lubricating difficulties. With this motor it is aimed to overcome this difficulty by cutting a recess in the valve chamber of the motor opposite the ports. The valve thus works between this shallow recess and the port through the cylinder wall. Examining the plan view of the motor in the illustration the recesses may be seen opposite each port. The revolving cylinder is pierced by a short length of pipe through which the gases are free to pass from the cylinder into the recess, thereby keeping the pressure the same on both sides of the sleeve.

### Valve Chamber Nearly Circular

As may be seen, the valve chamber is nearly circular in section, the waterjacket passing nearly around it. This should insure excellent valve cooling if the water circulation is good. A large cooling surface is available, since most of the length of the sleeve is in contact with the water-cooled surface of the valve chamber. The waterjacket is of generous area around the valve chamber as well as at the top of the cylinder, as may be seen from a study of the transverse section. Mention may also be made of the increased cooling area above the cylinder head owing to the fact that this part is not pierced by compression cocks (which the motor does not seem to have), or spark-plugs.

The action of the piston sucks the gas through the valve, which warms it in its passage. The opening in the valve is opposite the cylinder valve port at the proper time and of such a width that the port in the cylinder and the opening register for the proper length of time. There is no tendency for the compression stroke to force the sleeve away from the cylinder port owing to the pipe which permits of a balance of pressure on both sides of the sleeve. The exhaust acts in the same manner, the two openings registering at the proper moment.

To give an idea of the size of the ports, the dimensions as used in a practical case may be mentioned: In a motor having a bore of 4 1-4 inches and a stroke of 5 1-4 inches the size of the ports would be 3-8-inch by 3 3-4 inches. The lubrication of this sleeve takes place at four different points in its length, the oil entering through the apertures shown above the sleeve in the longitudinal section through the motor in the illustration.

The claims made for this motor by the inventor include the following advantages: Silence, on account of the balance of the sleeve and the fact that it is cooled to such an extent that the lubricating oil attains its full utility. The movement of the sleeve is also relatively slow, and, being balanced, renders lubrication easy. The inventor claims that it has fewer parts than any other four-cycle motor.

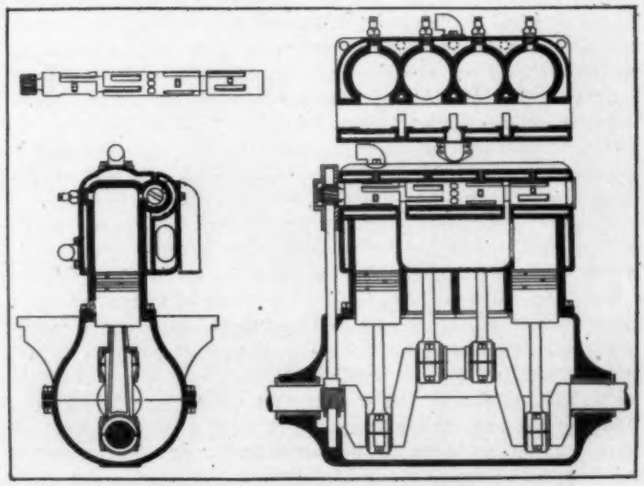
The crankcase of the motor is of a construction that would tend to render it extremely light. It will be noted in the illustration that a two-bearing crankshaft is used. This reduces the weight as far as the bearing-supporting bridges, etc., are concerned. Another feature which would tend to make a very light crankcase is its single-bottom construction. The oil reservoir is not located in the crankcase as the motor is oiled by an independent system so that the partitions and troughs of the splash-lubricated motor are avoided.

## Chickens Come Home to Roost

Poetic justice has just been handed out to the canton of Graubunden, Switzerland, for the antagonistic stand toward automobilists it has taken in the past. The canton is taking up a loan of 9,000,000 francs at 4 per cent., but for the first time in Swiss financial history not even half of the amount has been applied for. This unparalleled reluctance on the part of the capitalists, who almost without exception are motor car owners, is traced back to Graubunden's anti-motoring attitude. They refuse to support a canton as implacable in its ideas as Graubunden has proved itself to be.

**Soldering Platinum to Quartz**—As quartz has an exceedingly small coefficient of expansion under heat but requires a temperature of 1,800 degrees C. before it fuses, while platinum and all other metals fuse at lower temperatures and expand considerably, all attempts at soldering these substances together have until very recently proved futile. This difficulty has interfered seriously with several forms of laboratory work and with the use of ultra-violet rays from an artificial light source. Mr. G. Berlemont has now announced to the French *Académie des Sciences*, however, that the problem finally has been solved by the use of an alloy of platinum and iridium and certain knacks in the handling of the work. Attempts at which different kinds of glass and enamel were used as an intermediate between the quartz and the platinum had previously proved unavailing, but models constructed according to the new method resist very high temperatures and currents from 1 to 15 amperes.—From *La Metallurgie*, May 22.

**New Problem for Engineers**—The difference in the requirements of centrifugal governors according to whether they are used for regulating speed or measuring speed forms a subject at present deeply debated in Germany.



Sectional views of Walker motor with rotary valve

# Preparing for the Grand Prix de France

1—Clement monument at St. Martin-en-Campagne

2—Where the grand stands will be erected

3—Remaking road in preparation for Grand Prix

4—Entrance into Eu on the Grand Prix course

TWENTY rounds of a 47.8-mile course have to be covered by the cars competing in the French Grand Prix at Dieppe on Tuesday and Wednesday, June 25 and 26. On each day the distance will be 478 miles, giving a total of 956 miles for the two days. As they finish the first day's run the cars will be conducted to special boxes behind the grand stands, placed under military guard and kept there until a short time before the start of the second day's grind. They will be led out by a horse, and permission to crank will only be given at the word "Go." Thus, although held on two consecutive days, it will be one continuous race, and the longest ever held over ordinary roads in Europe. Of the fifty-eight cars entered for the race there will doubtless be fifty-four starters, for the Darracq company has decided not to compete. All the cars will run together and will compete for a single cash prize of $4,000 offered by the Automobile Club of France. In addition, however, those cars having a cylinder volume of not more than 3 liters (183 cubic inches) and weighing not less than 1,763 pounds will be entitled to compete for L'Auto cup. The other cars will be subjected to no limitations either of power or weight.

## Expect Record Will Be Broken

THE course adopted is that used for the 1907 and 1908 Grand Prix races, at the former of which Nazarro set up a mark of 70.5 miles an hour for European long-distance racing. Although the distance is twice as great as in 1907, it is fully expected that this record will be broken, and it is not at all unlikely that some of the smaller cars will be capable of doing better work than the big winner of 5 years ago. The course is fast, being probably one of the fastest in France. It is composed of three legs forming a triangle, the sides of which are roughly 16 miles each. The start is given at a point 800 yards from the Dieppe fork, where the only gasoline and tire stations are located.

These stations take the form of a long pit divided into sections for the firms taking part in the race, with a cement track immediately in front of it, the cars running onto this track and having their necessary supplies handed up. No supplies whatever must be taken on the cars except at this point. The central portion of the stands comprises a dining hall, at which it will be possible to take refreshments and at the same time watch the race. To left and right are the official boxes, with the press stand at one end. This latter consists of a two-story building, with telegraph operators on the ground floor and pressmen above. The score boards and timers' boxes are on the inside of the course, their cabin being connected with the press stand by a pneumatic tube. A tunnel has been bored under the road.

With the exception of a couple of sharp turns on a down grade near Ancourt, the first leg of the course presents no difficulties. A narrow-gauge railroad runs parallel with the course for several miles, but trains will all be stopped on the days of the race. At Londinières the change is made to the second leg of the course, there being a sharp twist to the left, a swing to the right and another to the left, all within a distance of 40 yards. Then follows a long winding climb on which low gears will have to be used. From this point the road is either level or slightly downhill, and being absolutely straight as far as the eye can see, the cars will run at their maximum speeds. Some smart work will have to be done at Eu, for after a couple of sharp bends at the entrance to the town, the cars swing right round onto the market place with a considerably steep gradient, thus entering the third leg of the course. The market place gives

## LIST OF ENTRIES THAT WILL COMPETE FOR THE GRAND PRIX DE FRANCE AND L'AUTO CUP

### BIG CAR CLASS (NO LIMITATION)

| | Car | Country | Driver |
|---|---|---|---|
| 1 | Lorraine-Dietrich | France | ..... |
| 2 | Lorraine-Dietrich | France | ..... |
| 3 | Lorraine-Dietrich | France | ..... |
| 4 | Peugeot | France | ..... |
| 5 | Peugeot | France | ..... |
| 6 | Darracq | France | ..... |
| 7 | Darracq | France | ..... |
| 8 | Darracq | France | ..... |
| 9 | Mathias | Germany | Mathias |
| 10 | Ford | America | Henri Depasse |
| 11 | Excelsior | Belgium | ..... |
| 12 | Fiat | Italy | Bruce-Brown |
| 13 | Fiat | Italy | De Palma |
| 14 | Fiat | Italy | Louis Wagner |
| 56 | Rolland-Pilain | France | ..... |
| 57 | Rolland-Pilain | France | ..... |
| 58 | Sigma-Knight | Switzerland | ..... |

### LIGHT CAR CLASS (183 CUBIC INS. AND 1763 POUNDS)

| | Car | Country | Driver |
|---|---|---|---|
| 15 | Lion-Peugeot | France | Boillot |
| 16 | Lion-Peugeot | France | Goux |
| 17 | Darracq | France | ..... |
| 18 | Gregoire | France | Porporato |
| 19 | Gregoire | France | De Marne |
| 20 | Gregoire | France | Romano |
| 21 | Gregoire | France | ..... |
| 22 | Sunbeam | Great Britain | Rigal |
| 23 | Sunbeam | Great Britain | Medinger |
| 24 | Sunbeam | Great Britain | ..... |
| 25 | Sunbeam | Great Britain | ..... |
| 26 | Singer | Great Britain | ..... |
| 27 | Singer | Great Britain | ..... |
| 28 | Vauxhall | Great Britain | Hancock |
| 29 | Vauxhall | Great Britain | Watson |
| 30 | Vauxhall | Great Britain | Ferguson |
| 31 | Alcyon | France | Barriaux |
| 32 | Alcyon | France | Page |
| 33 | Alcyon | France | ..... |

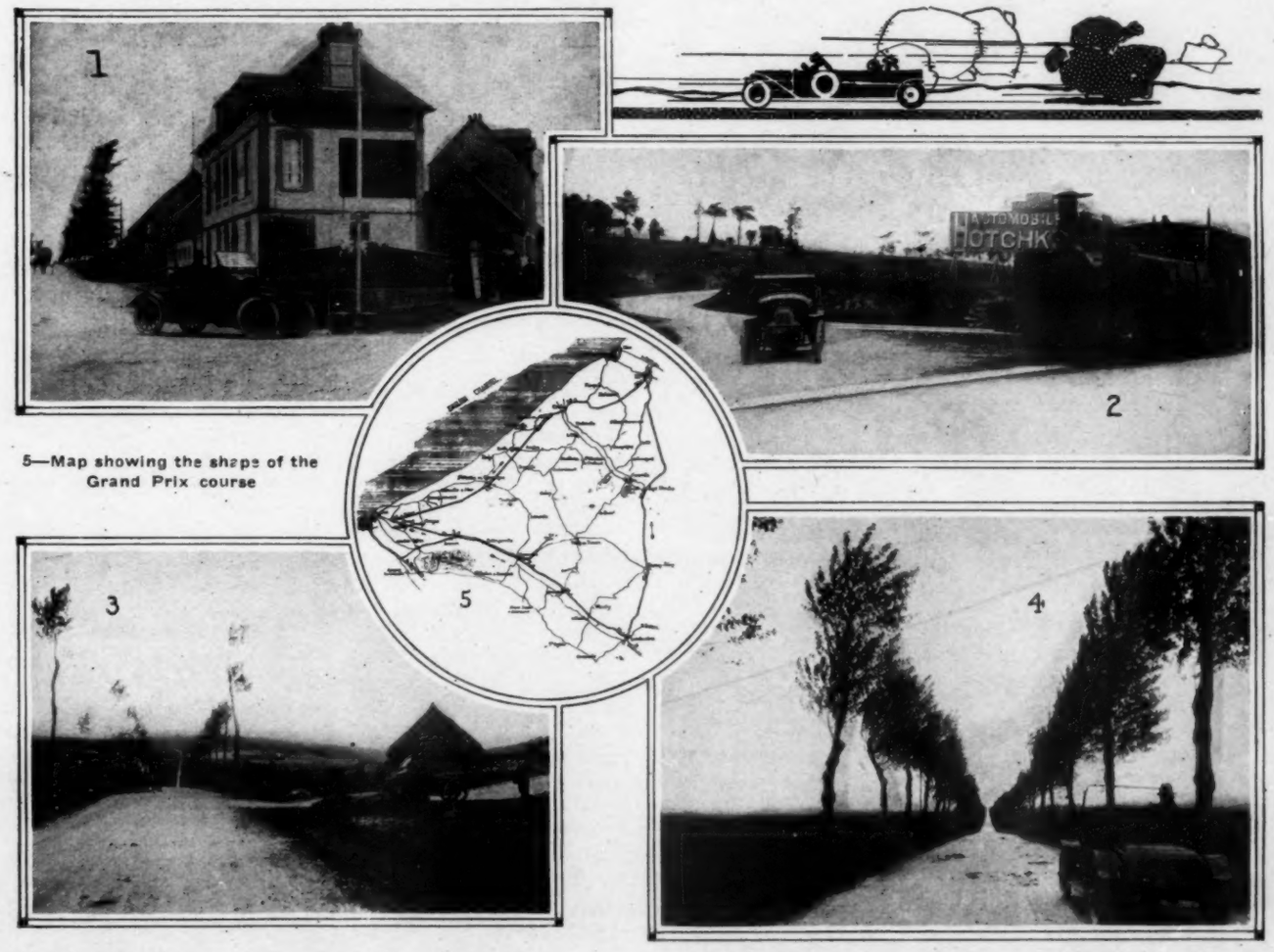
| | Car | Country | Driver |
|---|---|---|---|
| 34 | Vinot-Deguingand | France | Vonlatum |
| 35 | Vinot-Deguingand | France | Molon |
| 36 | Vinot-Deguingand | France | H. Molon |
| 37 | Sizaire-Naudin | France | Sizaire |
| 38 | Sizaire-Naudin | France | Naudin |
| 39 | Sizaire-Naudin | France | ..... |
| 40 | Arrol-Johnston | Great Britain | ..... |
| 41 | Arrol-Johnston | Great Britain | ..... |
| 42 | Arrol-Johnston | Great Britain | ..... |
| 43 | Calthorpe | Great Britain | ..... |
| 44 | Calthorpe | Great Britain | ..... |
| 45 | Calthorpe | Great Britain | ..... |
| 46 | Th. Schneider | France | ..... |
| 47 | Th. Schneider | France | ..... |
| 48 | Koecklin | France | Koecklin |
| 49 | Cote | France | Gabriel |
| 50 | Cote | France | ..... |
| 51 | Hispano-Suiza | France-Spain | Derny |
| 52 | Hispano-Suiza | France-Spain | Pilverdie |
| 53 | Hispano-Suiza | France-Spain | ..... |
| 54 | Hispano-Suiza | France-Spain | ..... |
| 55 | Lorraine-Dietrich | France | ..... |

practically unlimited width; thus it will be possible to place the barricading sufficiently far back to prevent accidents to spectators. In previous races, however, this point has proved disastrous to several of the cars. The third leg of the course runs parallel with the sea for practically its entire distance.

### Calcium Chloride to Lay Dust

On this portion of the course Albert Clement, the son of the French millionaire automobile manufacturer, met his death while practising for a race in May, 1907. It seemed quite possible to take the easy bend at 70 miles an hour, but through inattention Clement overshot the mark and capsized his car on a heap of stones. The road is slightly on the down grade as it reaches the fork at Dieppe. The record for one round of this course is held by Salzer on a Mercedes in 36.31, being at an average speed of 78.4 miles an hour.

Tar painted roads have caused serious inconvenience to drivers in the past by reason of the fumes injuring their eyes. It has therefore been decided to settle the dust by the use of calcium chloride. A contract has been placed with an English corporation to spread 180 tons of calcium chloride on the roads about 3 days before the start of the race. The matter will be sprinkled dry towards the close of the day and, possessing the property of absorbing moisture from the atmosphere, will render the ground not only dustless, but absolutely free from anything likely to injure the eyes of the drivers. The treatment of the roads in this way will cost $8,000. It is estimated that the total expense in connection with the race will be close on $80,000.




5—Map showing the shape of the Grand Prix course

1—The sharp turn at Dieppe Fork will require care
2—Train service will be stopped during the race
3—The straightaway stretch, near Sept Meules
4—Another splendid straightaway on the course

Fig. 1—Five-ton Atlantic electric with standard equipment

# Atlantic Electric Truck

## Four Models, of 1, 2, 3½ and 5-Ton Capacity, with Optional Battery Equipment for Each

### Left-Side Steering and Center Control Features—Comfort of Driver Has Been Considered

ATLANTIC electric trucks are made in four models: a 1-ton, 2-ton, 3 1-2-ton and a 5-ton. Outside of the capacities, the general design of these four trucks is exactly similar. They are designed to meet the requirements peculiar to the electric commercial vehicle and have no radical departures from general practice. Where considerable stopping and restarting is required in the work of the vehicle, the excellent accelerating powers of the electric should be taken into consideration. Convenience in charging and otherwise maintaining the electric has ceased to be a problem in even our smaller business centers so that the good points of the electric are now no longer hidden by difficulties in the upkeep.

The motor on all models is suspended from the center of the two longitudinal side members by a crucible steel cross-member which has lugs upon it for the purpose of carrying the motor. The motors are designed to have a voltage of 85 for all models, the amperages varying from 22 on the 1-ton model up to 60 on the 5-ton. These features are not fixed, however, the voltages being open to change according to the requirements of the purchaser. The motors are manufactured by the General Electric Company. They are specially designed for large commutator surface, overload capacity and low internal resistance. The armature shaft is mounted on ball bearings.

### Speed Regulation Is Provided

Batteries are carried on cradles beneath the motor frame. They are to a very large extent optional with the purchaser of the truck. A wide range of equipment may be chosen, as the list includes both the Exide lead and the Edison types. The standard equipment calls for Exide lead batteries, although this is used merely as a basis in figuring the prices of the trucks. The batteries are not guaranteed by the Atlantic company as this is taken care of by the concern which manufactures the batteries. The guarantees of these concerns are wide and cover a period extending over a term of years.

Suitable speed regulation on these vehicles is secured by the use of a controller of the latest design. The current from the batteries passes through thoroughly insulated wires of large capacity to the controller, which is conveniently located in a housing formed by the driver's seat. The handle of the controller projects from the seat beside the driver through an opening in the seat box. This gives a left control of the speed, the lever of the controller being near the center of the car and on the driver's right. Four forward speeds and two reverse are possible on the truck, while the contact fingers of the controller are made extra large so that the wear is distributed and renewals are rendered less frequent. When it is required to renew the fingers they may be readily reached as shown in Fig. 4.

The power from the motor is transmitted directly through a sprocket to a Morse silent chain which is housed in a dust and gritproof box. This chain drives the differential sprocket located on the jackshaft. Both the driving and receiving sprockets actuated by this chain are of mild steel, while the chain itself varies according to the size of the truck upon which it is in use. On the 1-ton truck, the chain has a 3-4-inch pitch with a width of 2 inches. The differentials are of 3 1-2 per cent. nickel steel, while the jackshaft itself is 1 1-4 inches in diameter and of nickel steel. The differential and the jackshaft are both carried on F. & S. ball bearings of the annular type. The tubes used in the jack-

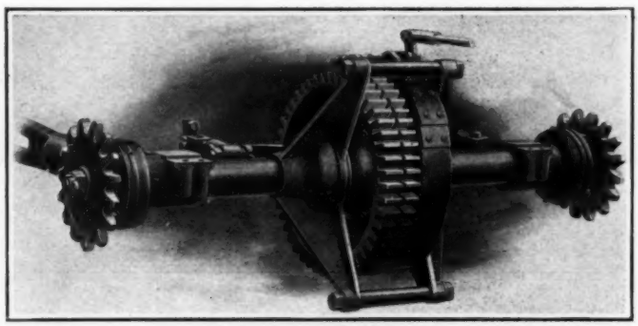


Fig. 2—Showing the jackshaft and sprockets. Note external brake

shaft unit construction are of Shelby seamless tubing 2 inches in diameter. On the other models of this truck, the specifications as to material are the same for this part of the car, but the dimensions differ. Those given for the 5-ton truck are as follows: First reduction, Morse silent chain having a pitch of .9 inch and a width of 2 1-2 inches. The jackshaft is 1 3-4 inches in diameter, while the tubes are 2 3-4 inches in diameter.

### Drive and Steering Gear Details

Final drive is taken up from the jackshaft through to the rear wheel by means of a Whitney roller chain. This chain on the 5-ton truck has a pitch of 1 3-4 inches, while on the 1-ton model the pitch is 1 1-4 inches. On the 2-ton truck the pitch is the same as on the small size, while on the 3 1-2-ton model a 1 1-2-inch pitch chain is used. The rear axles are rectangular in section and are drop forged, of Timken manufacture, as is the complete rear system, including the brake drums and shoes. The radius rods are steel castings.

The steering gear, which is of compact construction, is located on the left side of the car. The steering post and drop arm are shown in Fig. 4. The steering wheel on the smaller model is 18 inches in diameter, while on the larger it is 22 inches. The gear is of the irreversible worm type and is mounted on a bracket supported from the truck frame and raked back at an angle so that the driver expends a minimum amount of effort in directing the car. The gear is incased in a cylindrical housing, as shown in the illustration, but it may be readily reached by taking off the nuts shown at the top and bottom of the housing.

The wheels vary in size with the capacity of the truck. On the two smaller trucks, the wheels have fourteen spokes in the rear, while the front wheels have twelve spokes. The two larger models have fourteen-spoke wheels all around. Dual tires are fitted on the three larger models on the rear wheels, the 1-ton truck having single tires all around. The tire sizes

are 34 by 3 1-2-inch front and 36 by 4-inch rear on the 1-ton truck, and they range in size up to 36 by 6-inch front and 40 by 5-inch dual on the rear in the 5-ton truck. The wheels are all carried on Timken roller bearings and are designed according to the standards which have been accepted by the S. A. E. The wheels are provided with steel bands shrunk on the wooden felloe bands. The spokes are of rectangular cross-section, widening out at the hub and rim to give ample support at these points. As the dimensions of these wheels accord with the standards of the S. A. E. they will fit all the leading American tires, thereby offering a wide variety of choice at this point.

The springs on all models are composed of Krupp silico-manganese steel. The dimensions of the springs are as follows: 1-ton model, front 40 by 2 1-2 inches, rear 48 by 2 1-2 inches; 2-ton, front, 40 by 2 1-2 inches, rear, 48 by 2 1-2 inches; 3 1-2-ton, front, 44 by 3 inches, rear, 56 by 3 inches; 5-ton, front, 44 by 3 inches, rear, 56 by 3 inches. All these springs are of the semi-elliptic type and are suspended as shown in Fig. 3. The hangers are steel castings with case-hardened bushings. The spring bolts are fitted with integral compression grease cups.

### Braking Capacity Is Ample

A feature of note is the method used in supporting the forward shackle, a bracket being utilized for the jackshaft bearing as well as for this service. This bracket is made of crucible steel and is hot-riveted to the frame members, which are of channel section, the dimensions varying from 3 inches by 5 pounds to the foot up to 6 inches by 10 1-2 pounds to the foot according to the capacity of the truck. The cradles which

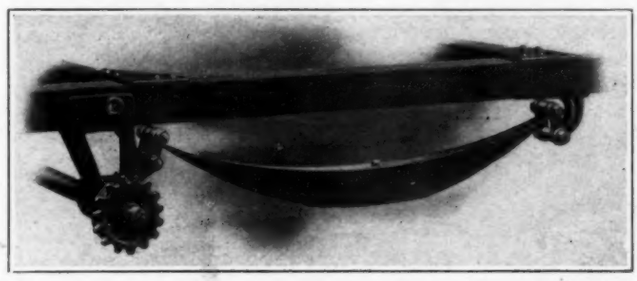


Fig. 3—Semi-elliptic springs suspended as shown, used in all models

carry the batteries are composed of angle iron, the dimensions of which also vary, the smallest being 2 by 2 1-4 inch and the largest being 2 1-2 by 2 1-2 by 3-8 inch, according to the number of batteries carried.

One set of brakes is on the jackshaft, while the other set is on the rear wheels. They are both operated by pedal which greatly reduces the tendency to use one set of brakes to the exclusion of the other set. The brakes on the rear wheels are of the expanding type, while the others contract upon drums on the jackshaft, which are cast integrally with the drive sprockets. The brakes are faced with anti-friction material. Both these brakes may be applied at the same time if desired as the pedals are arranged one on either side of the steering column so that both feet may be used. The brake drums are made of pressed steel.

The steel used throughout the construction of these cars conforms to the specifications recently agreed upon by the S. A. E. standards committee. The equipment is complete and so designed that the comfort of the driver is taken into consideration. The regular stock car includes a dashboard, footboards, driver's seat, box containing the controller box and tool space, Sangamo ampere-hour meter, main circuit switch, charging receptacle, two electric side lamps, one tail lamp, electric bell and tool kit. The seat is upholstered with space for two men. The battery equipment is complete for the different size trucks as follows:

| Model | Cells | Type |
|---|---|---|
| 1-ton | 44 | 13 M. V. Hycap Exide |
| 2-ton | 44 | 17 M. V. Hycap Exide |
| 3½-ton | 44 | 21 M. V. Hycap Exide |
| 5-ton | 44 | 25 M. V. Hycap Exide |

As mentioned before, this part of the equipment is subject to the wishes of the purchaser. The wheelbases of the trucks range between 8 feet 6 inches on the 1-ton and 12 feet on the 5-ton vehicle, and the loading spaces are 8 by 5 feet in the smallest and 12 by 5 feet in the largest size. The respective weights of these two models are 4,400 and 9,200 pounds with a height above ground when loaded 34 and 39 inches. The cars are designed to run at varying speeds for the four models. These are, respectively, 10, 10, 8 and 7 miles per hour when loaded, with a probable speed of 2 miles an hour higher when empty.

—

### More Speed Changes Needed

Speed-changing devices for automobiles are not yet what they should be, says Dr. Robert Grimshaw, of Dresden. They are either noisy and subject to excessive wear, or unreliable. There should be at least three different forward speeds—four would be better—and one for backing; and the forward speed most used should be direct-coupled. It would be better yet if the speeds were arranged not merely in steps, but with an almost infinite number of gradations from the slowest to the most rapid. There are times when the second speed is too rapid for ascending a grade or following another vehicle in a narrow street, and the first unnecessarily slow. For sudden changes there should be decided steps or notches so that there shall be no question as to what the rate of response will be; while for various grades and conditions of road and traffic—as, for instance, the following behind a slower vehicle in a narrow road, where there is no room to turn out for passing—the finer gradations are very desirable. An excellent illustration is the superior flexibility of a car with a four-speed gearset as compared to one equipped with a two or three-speed type.

—

ARRANGEMENTS have been concluded by which the Clément-Bayard automobile works will hereafter receive Knight-Daimler engines from the works of the company of this name and will equip certain models of Clément-Bayard cars with them in the future.

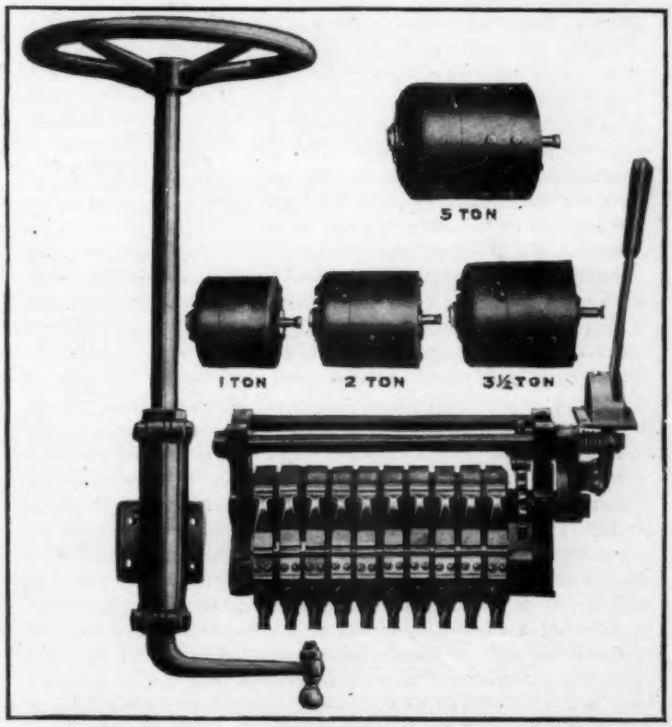



Fig. 4—Steering wheel and drop arm, controller and motors

# Digest of the Leading Foreign Journals

## New Mechanism Prettily Meets the Requirements of a Widely Accepted Formula for the Regulation of Vehicle Spring Action—An Interesting Differential Gear—Corrosive Sublimate in New Role

**HYDRAULIC Shock-Absorber**—The function of the Derihon shock-absorber is to suppress all oscillations of the vehicle springs after the first compression or extension by which they have conformed with an inequality of the road surface, but in no manner to interfere with either compression or extension in the first place. It is assumed that a hump in the road causes compression first, while a hollow may cause extension first. In both cases it is desirable to get the vehicle spring back to its normal load-carrying equilibrium quickly, so that it will be in position to receive a new shock, if one is coming, but all other movements of the springs are looked upon as detracting from the comfort of the occupants of the vehicle. The object of a shock-absorber must thus be to brake the return of the spring to its load-carrying equilibrium so effectively that the spring reaction, or tendency to swing to the opposite side of its equilibrium, and continue to oscillate, is exhausted just at the moment when the spring again reaches its load-carrying position and the wheel regains firm support on the smooth ground, and to do this so quickly that the return of the spring to this state of equilibrium will have been accomplished before—at any speed up to the maximum of the vehicle—another shock shall have been received. Manifestly, the time limits for the proper functioning of the device depend on the quality of the road as well as upon the speed of the vehicle. The inequalities of the road may follow one upon the other in rapid succession, and the problem of retarding spring action quickly is evidently not one promising an easy off-hand solution. The very terms of the problem seem to be in mutual contradiction, and only a more or less happy compromise can be expected. With this in view, an adjustment device is usually provided by means of which the action of a shock-absorber may be suited to the average speeds and average roads with which the user of the car has to deal. The construction by which the requirements are met in the Derihon shock-absorber is shown in Fig. 1.

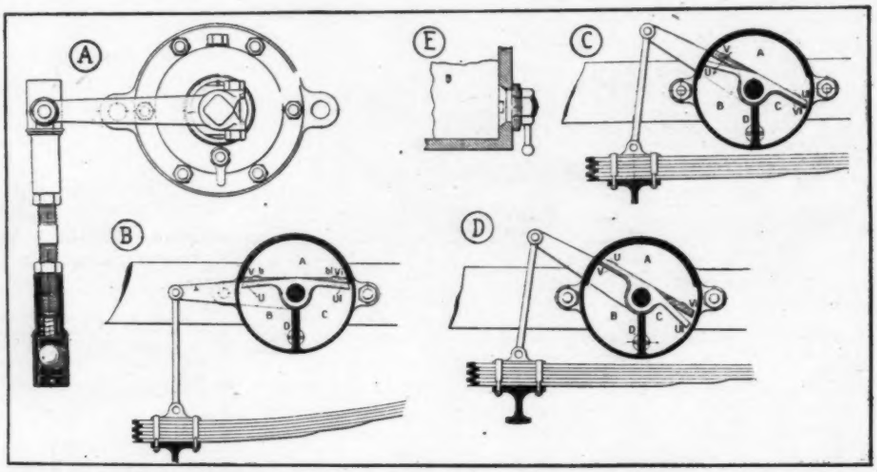



Fig. 1—Derihon spring regulator. (A) External side view. (B) Diagram of mechanism at rest. (C) Diagram showing action under compression of vehicle spring. (D) Return action after compression. (E) Adjustment valve with spring washer

A flanged base plate is bolted to the frame reach and carries a central stub shaft upon which the moving parts turn. To this plate is bolted the cylindrical casing containing the oil in which the mechanism works. The bore of this casing is smaller in its upper portion A than in the lower, and the lower portion is divided into two compartments B and C by a transverse partition wall D. An adjustable bypass from one of these compartments to the other is effected by means of a valve or stopcock inserted in the front wall of the casing, as detailed in Fig. 1 E. The valve has a slotted conical portion turnable in a conical counterbore in the inside wall of the casing, opposite to the partition D, and the thickness of the partition covers the slot when the latter is vertical, closing all communication between the two compartments, but when the valve is turned the slot becomes a conduit for the liquid, reaching its maximum capacity when it is in the horizontal position indicated in the illustration. The front of the casing is centrally recessed and flanged to receive a stuffing box, composed of steel and leather disks and a securing-nut, in which the hub mounted upon the stub shaft turns liquid-tight. This hub is connected with the vehicle axle or the spring clips, by the customary jointed levers and a ball and socket joint, and carries, inside of the casing, two fixed vanes V and VI and a rocking piece which is formed with two other much thinner vanes U and UI and is free to turn around the hub but for two lips *b* and *b*1 on the fixed vanes which limit its movement to a small angle, and the vanes on the rocking piece are not quite opposite to one another, so that, when one of them is flush with one of the fixed vanes, the other is at a small angle with the other fixed vane, leaving a triangular opening between them through which the liquid may flow without hindrance, while otherwise the fixed and the rocking vanes in combination fill all the transverse space in the casing. But the ends of the vanes reach the cylindrical wall of the casing only where the latter is contracted to its smallest diameter, that is to say in its upper portion. When the turning of the hub, caused by action of the vehicle spring, brings any of the vanes into the lower portion of the casing, that vane ceases to have any appreciable effect upon the movements or the resistance of the liquid, as the latter can escape through the gap between the vane and the wall of the casing. The upper edge of the partition wall D in the lower portion of the casing fits of course snugly against the cylindrical portions of the vane hubs.

When the vehicle spring is compressed and the fixed vane on one side is turned into the upper and close-fitting part of the casing, the rocking vane on that side fails to follow and the mech-

anism takes the position shown in Fig. 1 C, in which the liquid passes between V and U without resisting. And at the same time both vanes on the other side pass into the lower and larger part of the casing where there is also no resistance. The compression of the vehicle spring is therefore unhindered. But when the vehicle spring begins to extend, the lip *b* of vane V is brought down against the rocking vane on the same side, as shown in Fig. 1 D, and the two vanes together act as a piston against the liquid in compartment B, driving it through the valve in the front wall of the casing into compartment C against such resistance as is determined by the adjustment of the valve.

If the vehicle spring is extended in the first place instead of compressed, the action is exactly similar, excepting that it is now vanes VI and UI which are brought into the close-fitting portion of the casing, and, when the spring reaction sets in, it is these vanes which drive the liquid from compartment C into compartment B against the resistance of the valve. Under all circumstances, it is seen, a departure from the neutral position shown in Fig. 1B is effected without appreciable resistance, while the return to this neutral position is always accompanied by a resistance which is the more decided the more nearly the bypass valve is kept closed.—From *La Vie Automobile*, May 18.

—

**Chassis and Differential in New Mercedes Cars**—In the plan view, Fig. 2, of one type of the new Daimler-Mercedes cars with Knight motor and shaft drive various features will interest designers. Among these are the double-cone clutch whose diameter is about one-half of that of the flywheel and which was illustrated in THE AUTOMOBILE of June 6; also the suspension of the motor and the gearbox, the transmission brake on the gear-shaft in front of the X-shaped cross-member and the converging drive-thrust rods with ball joints in the housing of the universal joint of the drive-shaft. But the most conspicuous variation from customary design is noted in the differential. When in action it turns in a transverse instead of a longitudinal plane. The drive-shaft seems to be coupled to a prolongation shaft which goes through to ball bearings in the extreme rear of the housing, and the middle of this piece is formed with a short transverse double stub shaft upon which two of the differential pinions are journaled. All the driving is done through these two pinions. They mesh with the other two pinions of the differential which are fixedly mounted upon sleeves free to turn in relation to the prolongation shaft but which ordinarily turn with it. Upon the same sleeves are mounted the driving pinions; one on the front end of the front sleeve and the other on the rear end of the rear sleeve. The front driving pinion drives a large bevel gear fixed upon the left-wheel drive-shaft, and the rear driving pinion drives another bevel gear fixed upon the right-wheel drive-shaft. The sizes of the driving pinions and the bevel gears are of course so proportioned as to produce the same rate of driving for both wheels, unless the vehicle is turning.—From illustration in *Der Motorwagen*, April 20.

—

**Improved Metal Coating**—Means for rustproofing or changing the appearance of iron and steel by coatings of zinc, tin or copper or by chemical treatment remain on the order of the day. The old method of galvanizing by immersion in a bath of hot zinc has given way to sherardizing at a much lower heat with zinc white or to the Schoop process of tumbling in metal powder, and in many instances electroplating is employed by which all heating is avoided and a foundation may be laid for various desired surface and color effects. The Schoop method may be applied with almost any pulverized metal on almost any other substance. Scarcely has it become industrialized, however, before the Lohmann process appears which promises a return, in some branches of industry, to the old immersion method in an improved form. Unlike "Sherard's" method it is not limited to galvanizing but is used for coating with lead or tin as well. By the old galvanizing process the immersion in the molten zinc was preceded by treatment of the work in hydrochloric acid. It is the preliminary bath which is different by the method patented by H. J. Lohmann. After being pickled in sulfuric acid to remove rust, the work is given a bath in corrosive sublimate composed of hydrochloric acid, bichlorate of mercury and sal-ammoniac. Then it is dried and plunged into the molten zinc, lead or tin at about 550 degrees centigrade. The part played by the mercury in the process seems to be to penetrate into the minute pores of the metallic surface to be coated. In the molten metal this mercury is volatilized and the coating-metal takes its place in the pores, effecting an intimate union. Microphotographs show that the coating-metal mingles with the surface layer of the object with great regularity.—From *La Technique Moderne*, May 15.

—

**Seamless Carbureter Floats**—A method for manufacturing floats in one piece by electrolysis has been patented by the Dion-Bouton firm. A solid piece shaped as the hollow space of the float is first formed of easily fusible metal, and this is copper-plated in a thickness giving the required weight and strength. Small holes are bored in the top and bottom and by heating to above the fusion point of the core-metal this is caused to run out, whereafter the holes are closed with dabs of spelter.

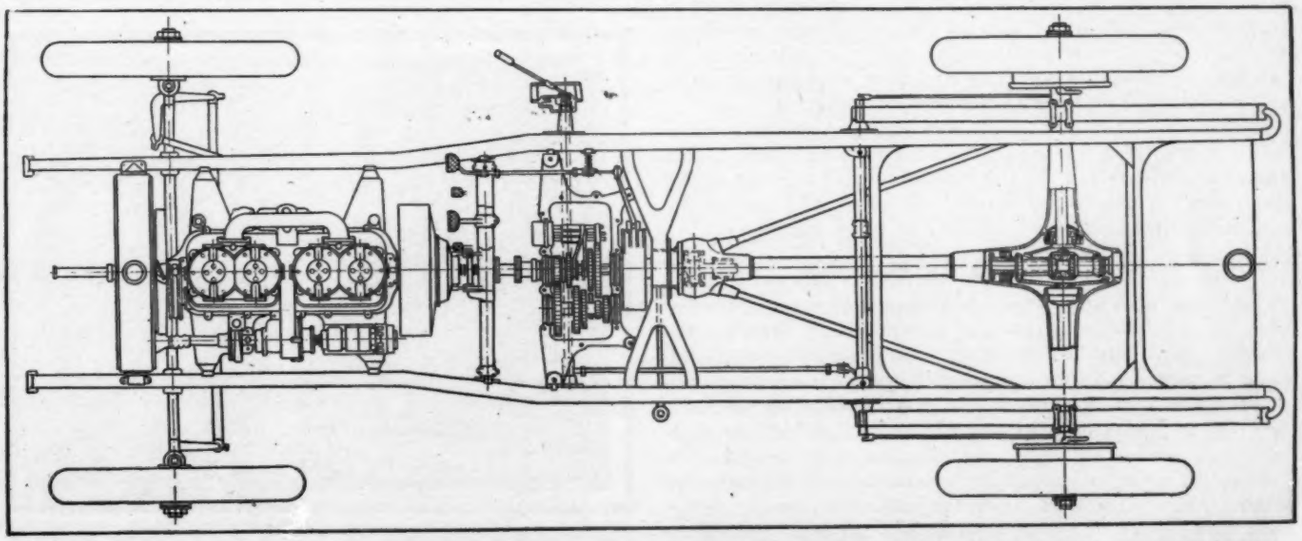


**Fig. 2—Plan view of new Mercedes car with Knight motor, double-cone clutch of small diameter, remodeled shaft drive and differential gear turning in a transverse plane with new distribution of stresses**

Fig. 1—Buffing the bare fabric, before new layers are applied to replace torn ones taken out preparatory to rejuvenation

# Vulcanizing a Tire

## Description of Hot and Cold Processes of Repairing Outer Casings and Inner Tubes

### Methods by Which Work Can Be Done in the Garage or on the Road

PNEUMATIC tires used today on more than 90 per cent. of pleasure cars are both constant comfort and trouble givers. No device has been perfected which has been accepted by the majority of automobilists as a satisfactory substitute for rubber tires; while the easy riding which is obtained with properly inflated tires is had at the expense of the materials.

Tire expenses stand foremost among the items of automobile maintenance, notwithstanding the fact that tire abuses have been enumerated scores of times and that every owner and driver is fairly familiar with them. Like the child who cannot help eating sweets, however, most automobilists prefer to take the more comfortable though more costly course of abusing their tubes and casings until they are in bad need of repair.

It stands to reason that the magnitude of repairs varies widely with the quality of the tires, the time they have served before undergoing repairs and the treatment they have received during that period. Furthermore, repairs may either be good or bad, according to the quality and quantity of labor employed.

### Repairs Should Be Thorough

The repair work consists in removing the injured portions of the tire tubes and casing and in replacing them by new material which must be thoroughly united with the original material of casings and tubes. The latter process is known as vulcanizing and may be done in two ways, without or with the application of heat, being referred to as cold or hot vulcanization respectively.

Since the great majority of automobilists hold off their tire repairs until after a blow-out on the road, most repairs are apt to be road repairs. To make these as easy and as relatively good as possible, various quick-repair outfits are sold by the supply men, which have the purpose of enabling the tourist to make a rapid repair in case of a punctured casing or of a blow-out. A number of these outfits give good results. They consist, in principle, of a rubber solution containing a cold-vulcanizing agent, for example, chloride of sulphur, $S_2Cl_2$, which, when exposed to the air, solidifies and forms a rubber patch which intimately attaches to the rubber of the tube or casing tread. This method of cold vulcanization proves excellent where pure rubber is to be repaired, as in the case of inner tubes.

A different situation, however, is met where a casing has been damaged. A lasting and satisfactory repair by cold vulcanizing can be obtained only in those cases where merely the tread, but not the fabric of the tire has been injured. But this is a rare state of affairs. If, for instance, the rubber tread of the casing is punctured by a nail or stone, without causing a blow-out, the apparent effect is only a small hole through the tread; but in the majority of cases the fabric is at least slightly injured. Then the stresses set up in the tire by its work continue to extend the damage, ripping as many layers of the fabric as were originally damaged. The tears thus made generally run on the bias, and as the fabric is under tension in the tire, the tendency is to entirely expose to stones and nails the injured portions of the inner layers of the fabric as well as the portion of the tube lying under it. Therefore, a casing repair, except in the case of a new injury, should not stop at a quick roadside job. To keep the tire serviceable for a long time, it must undergo a thorough process of reinforcing retreading and vulcanizing.

### Buffing Is Often Beneficial

When the fabric of a casing is to be repaired in a single place, the portion to be treated is first bared by cutting through the rubber tread at one side of the injured section. The rubber is cut, from bead to bead, as far as the inner injury presumably extends, and is then held spaced from the exposed fabric by means of a piece of wood or the like. After this the real repair process is entered upon. It consists of cleaning the fabric, cutting out the bad portion and replacing it by a piece of new fabric and covering the same, as well as the inner surface of the rubber tread with repair gum, which binds them together when they are brought into contact.

The first part of the process, cleaning the fabric, may be carried out in several ways. The most efficacious method, that of buffing it, is illustrated in Fig. 1. By this procedure the fabric is mechanically cleaned so that it presents a clear surface to the repair material which is to be placed on it; incidentally it may be well to remark that a good repair cannot be had unless scrupulous cleanliness is observed at all stages of the process. Where no buffing wheel is at hand, the fabric may be scraped with a fine file, but this method always takes in the risk of weak-

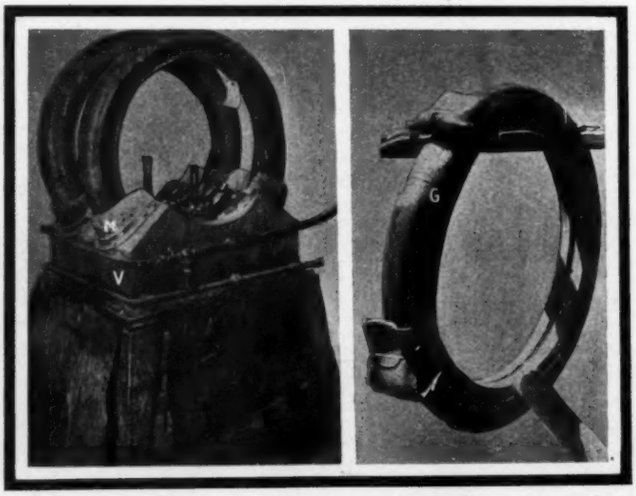



Fig. 2—Garage vulcanizer for outer casings, heated by steam
Fig. 3—Tire being gum-coated for vulcanization

ening it. About the best method after buffing is to clean the fabric with a little gasoline and permit it to evaporate before applying the new fabric to the old. The new fabric is a layer of Sea Island duck from 1 1-2 to 2 millimeters thick and woven in the same manner as the original tire fabric. Of this new fabric as many layers are used as are damaged in the tire fabric. The first layer is placed on one of the lower unharmed strata of the original fabric and, being composed of cotton and pure rubber, sticks to it. Then another layer is placed on this, and so on until the number of new layers equals those cut away. Each layer is larger than the one which it covers.

After arranging the new fabric layers, the top layer of same and the inside of the tread rubber are covered with hot vulcanizing gum. This material is a solution containing sulphurous compounds which, when heated to a certain temperature and for a certain time, give the rubber with which they are mixed a certain degree of hardness. The gum is permitted to try on the fabric and the rubber until all the solvent has evaporated. Then fabric and rubber are pressed together and placed into the vulcanizing apparatus.

Vulcanizing machinery varies in several respects. The most obvious variables are size and capacity. Then there are different designs, some vulcanizers being adapted to the heating of casings, some for tubes and some for the treating of both. Again, there are various methods of heating the rubber articles in the vulcanizers.

## Vulcanizers Useful in Garages

In Figs. 3, 7 and 8 vulcanizers for garage use are shown. In the type illustrated in Fig. 2 steam is utilized for the work. The vulcanizer proper V, which is partly filled with water, is heated by gas flames from underneath, so that the moulds M are kept at the temperature of the steam formed thereby. The casings fit into the moulds and are held tightly against the walls by short air-bags which are placed in them like inner tubes, being inflated through a tire valve from an air compressor. The vertical bolts force a brace against the bead of the casing which holds the whole system in tight relation.

The time of vulcanizing and the consequent degrees of vulcanization vary in the different establishments. A treatment by steam of 40 pounds pressure for 40 minutes is a fair average; during this time all new rubber resting in the moulds which are heated is vulcanized to a good tire hardness. When the operation is completed the bracing is removed, the air-bag taken out of the casing and the latter is taken from the mould and cooled slowly. Too rapid cooling can have none but a detrimental effect upon the tire and its desirable qualities.

Inner tube jobs call for a different shape of vulcanizer, such work being preferably done with flat-surface apparatus. The types adapted for such work are shown in Figs. 7 and 8. In

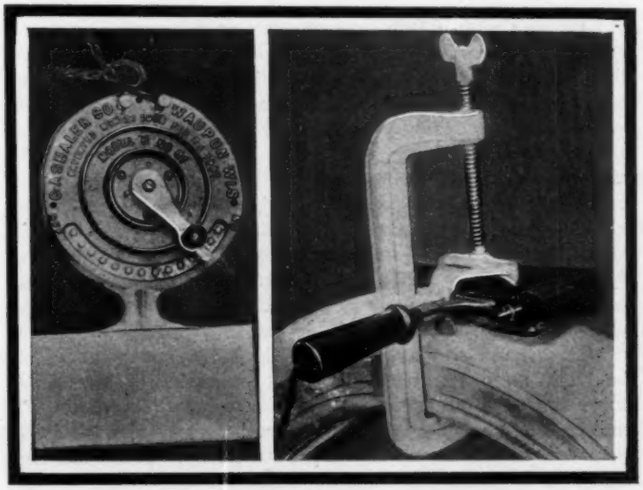


Fig. 4—Asbestos plate and rheostat of portable vulcanizer. Fig. 5—Electric vulcanizer in place on an outer casing

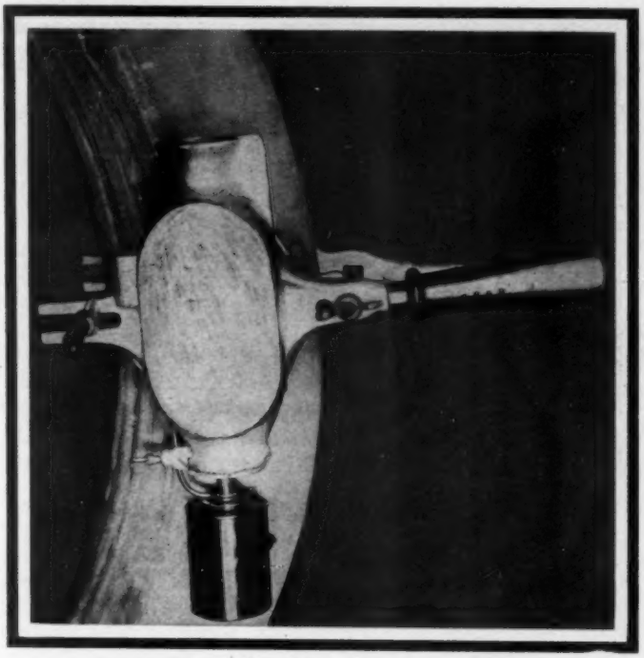


Fig. 6—Portable steam vulcanizer heated by a detachable alcohol lamp and held to the casing by chains, bolts and nuts

both cases the body of the vulcanizer has an even, flat surface upon which the tubes are placed, being pressed against it by a weight.

Before this treatment is begun, the punctured portion of the tube is cut away and the surrounding portions of the inside are cleaned and coated with some tire cement. Then a patch of double para rubber is placed over the hole. This rubber is cured on one side and uncured on the other, the latter side being in contact with the inner tube. The cured side, when pressed against rubber, does not adhere to it. In the vulcanizer, Fig. 7, the inner tubes are pressed against the surface, which is heated by steam coming from a boiler by a small weight, which also serves as a fulcrum for the arm A pulled down by a weight W or a clasp C. The vulcanizing process lasts about as long as in the case of tire casings, and the same general rules hold for the handling of the tubes. In the type of vulcanizer shown in Fig. 8 the tubes are pressed between the hot surface and the plates.

Portable vulcanizers are very handy appliances for tourists. These devices are heated by alcohol or gasoline burned in a lamp, which heats the steam inclosed in the metal body of the vulcanizer. Fig. 6 shows an up-to-date type of portable steam vulcanizer, which is furnished with an outfit containing repair gum, para rubber and all the necessary sundries for a roadside repair. The half of the vulcanizer which contains the water to be heated is laid against one side of the casing, being equipped with an oval convex surface, while another piece is held against the other side of the tire. The two sections are held together by bolts and nuts and a chain running around the second-mentioned section of the vulcanizer.

## Portable Outfits Are Quickest

The surface of the heated section, Fig. 6, is flat and may be used for the vulcanizing of tubes. In this case the second section of vulcanizer is pressed against the tube inserted between it and the flat surface of the heated section. The two sections are held together by the same means as in the case of a casing job, and the whole arrangement may be placed in a stable position on the ground or any other suitable place. If the repair is done inside the shop, the vulcanizer may be easily attached to a bench. The time of completing a job with a portable outfit is shorter than that required in stationary plants.

Electricity is a very comfortable source of heat, and where a somewhat higher price for the work is of no consequence and

Fig. 7—One type of stationary steam vulcanizer for tubes, used by a tire maker

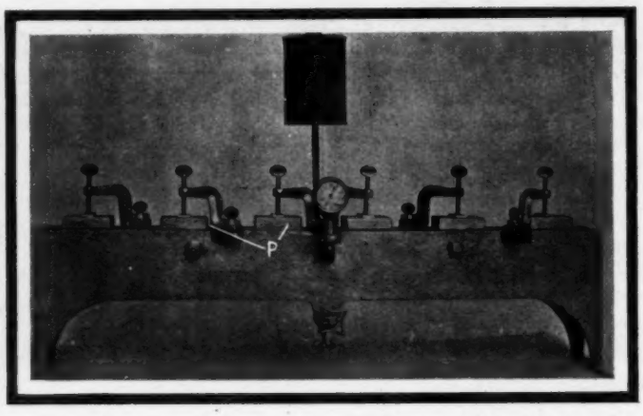



Fig. 8—Another design of tube vulcanizer designed for the use of a repair man

electricity is available, a small electric vulcanizer is a most desirable part of the garage equipment. The outfit, which is made by several manufacturers, consists of the necessary chemicals, a vulcanizer which closely resembles the steam type and a rheostat which serves to regulate the heat of the vulcanizer. The latter two devices are shown in Figs. 4 and 5. The rheostat, Fig. 4, interposes a variable resistance in the circuit through which the current flows to the hollow vulcanizer section. The latter contains, instead of a water chamber, a resistance which transforms the electric current passing through it into heat. Current is taken by means of a standard plug and socket from the wall or a lamp. The second section of the outfit is faced with asbestos, and has an extension which may be screwed, together with the rheostat, to a bench, so that the asbestos-covered portion protrudes over the edge, giving a ready surface for tube-vulcanizing. If this arrangement is found uncomfortable the rheostat may be permanently attached to a bench or wall, and the asbestos-fitted section left separate; in this case the two sections are in precisely the same independent relation as the two steam vulcanizer sections.

The vulcanizer is at present not as popular as it deserves to be. A large vulcanizer is a valuable and profitable addition to any garage and repair shop, owing to the multitude of automobilists who require tire repairs but are not in possession of the necessary appliances. Vulcanizing plants in large and small cities have proved profitable undertakings, and for a roadside inn or country garage investment in a vulcanizing outfit cannot but prove of advantage. Private owners, if they decide to buy a portable vulcanizer, will find that its first cost will soon be offset by the saving of tires.

## Fuel Not Always Finely Divided

ONE of the greatest difficulties found even in the most modern of carbureters is the fact that they do not divide the fuel finely enough. Many experimenters have made use of transparent models for the purpose of watching the action of the carbureter under different conditions, and this fault has been shown to be of marked prominence. The fuel, instead of leaving the spray nozzle in a finely divided state, poured forth in a solid stream at low speeds or in the form of large globules. The rapidity of evaporation of any fluid depends to a great extent on the amount of surface exposed to the surrounding air. The maximum surface is exposed when the fuel is broken up into the greatest number of small particles. Therefore, when the circumstances are such that the carbureter action does not permit of this fine subdivision, vaporization is taking place at a much slower rate and the full possible efficiency of the carbureter is not being developed.

At high speed, this action disappears and the carbureter will, as a rule, allow the fuel to be finely divided. In fact, at the highest speeds, and with a carbureter having careful workmanship on the nozzle and needle valve, the fuel issues forth in the shape of a fine mist. It is for this reason that the average carbureter is always more efficient at high speeds than at low speeds. It is extremely necessary that the action of the nozzle be more efficient at high speeds than at low speeds, on account of the shorter length of time allowed for the charge to be drawn into the cylinder, so that the actual efficiency of the motor, while affected to some degree, is not raised as high as might be expected when the increase in the carbureter efficiency is taken as a criterion.

A study of the conditions outlined above will show that in adjusting the carbureter the first adjustments should be for low speed, as it is for this condition that the richness of the mixture is most needed. The slight changes for high speed can then be made afterwards. On many of the newest carbureters special adjustment points are fitted for high and low speeds.

## Possible to Increase Compression

IT is not impossible to alter the compression of a gasoline motor, even if the shop at the disposal of the owner be a small one. A motor which has not as high a compression as it should have can have this defect readily remedied and an increase in economy as well as in the actual horsepower output will be the result.

The most common method of increasing the compression is to fasten a plate to the top of the piston. This has the effect of filling up some of the compression space and hence rendering it less. This has the effect of raising the compression to a considerable extent, but it is also afflicted with the drawback that is apt to disturb the whole scheme of balance of the motor. This is especially the case with a single-cylinder motor, but even in four-cylinder motors it has a bad effect in this particular.

A better way to increase the compression is to substitute a slightly longer connecting-rod. This has the advantage of not increasing the weight at such a distance from the center of rotation. It will not cause preignition by introducing into the combustion space points which will tend to glow after being submitted to the heat for a short time. Besides the amount of increase in the compression can be readily controlled as the volume removed from the combustion space may be simply calculated by taking the area of the cross-section of the cylinder and multiplying it by the difference in the length of the new connecting-rod and the old. To make a slight change in the compression, it is only necessary to draw out the length of the connecting-rod for the distance required. It would be better not to attempt to do this in an amateur shop, however, as it takes a clever smith to do the work correctly without weakening the rod at some vital point. A method which has often been used and which has virtually the same effect as changing the length of the connecting-rod is to plane off the lower face of the cylinders and the upper face of the crankcase before putting the cylinders back into place.

# Harking Back a Decade

FROM *The Automobile and Motor Review*, June 7, 1902:

With the present issue THE AUTOMOBILE and *The Motor Review* are consolidated in one weekly publication. This combination is the result of demands on the part of the readers of THE AUTOMOBILE for a weekly issue; and from the readers of *The Motor Review* for a higher class of technical matter.—*Editorial announcement.*

There were fifty-five starters in the endurance run held under the auspices of the Automobile Club of America last week, including representative cars of the best American and foreign makes, and a majority of the entrants completed the whole 100-mile run without a penalized stop. Penalties were laid on all stops except for tire trouble, police orders, timid horses, closed railroad crossings, etc. A speed limit of 15 miles an hour was enforced. At the hour of going to press the winners had not been officially designated. In the speed trials on Saturday a deplorable accident occurred when the Baker electric torpedo, going at a rate in excess of 60 miles an hour, collapsed its right rear wheel and plunged into a row of spectators, killing one man and seriously injuring four other spectators.

If road and track racing are to continue, and we believe that both have their uses, not only must new safeguards be introduced, but a clearly defined line must be drawn between the good and the bad. The courses, or a very large proportion of them, have been open freely to every variety of dangerous and useless freak that perverted ingenuity could suggest. The result of this license, told this week in every paper in the country, is after all far more shocking than surprising.—*Editorial.*

Reorganization of the bankrupt Milwaukee Automobile Company is being planned and a corporation capitalized at $1,000,000 is in an advanced state of preparation to rehabilitate the big plant.

Exports of automobiles and parts from New York during the week ending May 31 amounted in value to $18,560.

Banker Brothers, of New York, agents for the Peerless and Pierce lines, are moving to West Forty-third street, where more commodious quarters have been secured.

The State Fair grounds at Indianapolis contained 2,000 interested spectators at the automobile race meeting staged last Saturday. A Winton and an Oldsmobile proved to have the speed of the party.

Charles M. Schwab has purchased another Mercedes, which is guaranteed to show a mile in 40 seconds. The car is rated as 55 horsepower and has accommodations for four passengers.

## For Pot-Shots at Aerial Enemies

It is well known that the French War Office has made great strides in the adoption of the aeroplane and dirigible balloon, but, while it recognizes the necessity for enlisting the services of aerial scouts and skirmishers, it is also well alive to the desirability of being able to curb the activity of these same items of an enemy's equipment. Hence the "auto-cannon" came into being.

This instrument of destruction is built upon a 25 horsepower, four-cylinder De Dion Bouton chassis. The gun carried is a 75 millimeter breechloader of the very latest type, and its mounting is such that it can be fired in every direction, both in the horizontal and vertical planes. Its elevation is anything up to 70 per cent. with the horizon, which means that it can be fired in almost an upright position, and the aim can be modified either horizontally or vertically by the mere depression of a lever controlled by the artillerist in charge.

The details of the gun itself are the property of the French War Office. The design was the joint production of Captains Carsenat and Houberon, of the artillery technical staff, and the service rendered by the new machine in last summer's maneuvers in Picardy was so thoroughly satisfactory that a number of the new weapons are being constructed on De Dion Bouton chassis. —*The Car*, April 17.

# Among the New Books

SCIENTIFIC MANAGEMENT, a record of the address and discussions at the Conference on Scientific Management held October 12, 13, 14, 1911, at the Amos Tuck School of Administration and Finance, Dartmouth College, Hanover, N. H. Published by the Weekly Bulletin Publishing Company, Boston, Mass. 387 pages, 8vo. cloth. Price, $2.50.

Representatives of the country's foremost industries attended this conference, and a lasting record of their remarks on the installation of scientific systems which would be particularly adapted to their particular field cannot help but be of value. In the last few years efficiency engineering has assumed an importance which cannot fail to be recognized. The reduction in the cost of output and the coincident increase in production is a decided factor in the price to the ultimate consumer. A summary of the situation is well brought out by Harlow S. Person in his introduction to the record.

FACTORY MUTUAL INSURANCE, Arkwright Mutual Fire Insurance Company. Compiled to observe the fiftieth anniversary of the company by Edward V. French. Privately printed in Boston, Mass.

A half century of development along the lines laid down by the law that an ounce of prevention is worth a pound of cure. The story of the development of the prevention idea that cannot fail to strike home because figures and certified facts are laid before the reader. The reduction of the cost of insurance by the proper design of the factory and the use of forethought in the arrangement of fire preventive apparatus is one of the greatest studies of American industry.

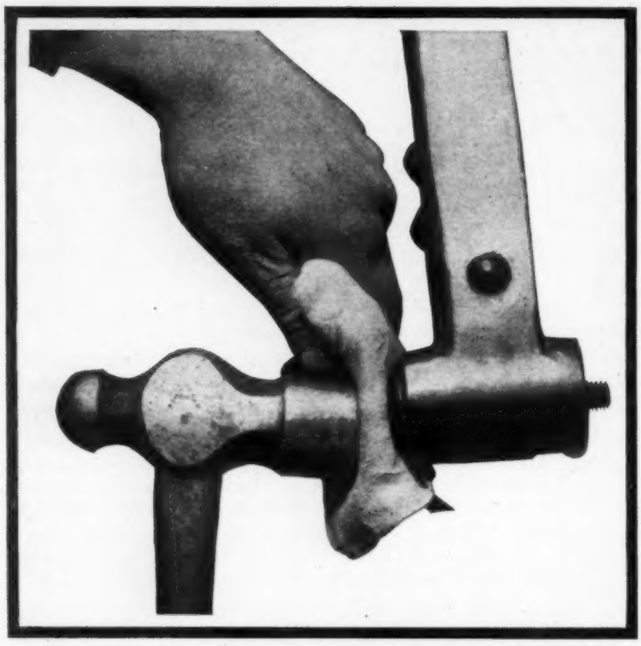
A WOMAN'S WORLD TOUR IN A MOTOR, by Harriet White Fisher. Published by J. B. Lippincott Company at the Washington Square Press, Philadelphia, Pa. 361 pages, 5 1-2 by 8 inches, with numerous half-tone engravings. Price, $2.00.

An uncommon book of travel is this in that it touches on phases which have been hitherto unexplored. The family life of the East is laid bare in an interesting way which cannot but hold the attention of the reader. Owing to the authoress' large social acquaintance she was received in the best households throughout her whole trip and was thus able to gather information which is not only valuable, but of an interest.

GAS ENGINES, by W. J. Marshall and Captain H. R. Sankey, R. E. Published by D. Van Nostrand Company, New York City. 278 5 1-2 by 8-inch pages, with numerous illustrations. Price, $2.00.

This new addition to the already large field of books on the gas engine is unique in that it is designed primarily as a study of the underlying principles in this type of power plant. The first part of the book is given over to a short study of thermodynamics as applied to the gas engine, while the remainder takes up step by step the development of the different functions of the motor, such as the ignition, cooling, etc.

The French army is prepared to fight enemies in the air



Showing proper way of using hammer on external parts

# Preserving Outside Finish

## How to Wash the Car—Taking Care of Brass Parts—Painting Exhaust Pipe—Other Tips

WHEN the car arrives from the maker, when the last bit of packing has been removed, the dust wiped off and the car stands before the delighted owner at the dealer's shop or at his home, one of the first things that meets his approval is the finish of the car. The lustrous coat delights the eye, the polished fittings appeal strongly to his sense of the beautiful, and right then and there a resolution is made that the car will keep its appearance if systematic effort will produce this result. How many of these resolutions fall by the wayside it is needless to say, but for the few who carry out their original intentions a fine-looking car is the result. There are not many enemies to a good finish, but what there are are very potent, and if the car is neglected for any length of time they are always on the alert to work the damage of which they are capable.

Chief among the things which can damage the appearance of the car is mud. What rust is to fine tools, mud is to a smooth polish. The mud itself does not harm the car but it is the removal of the mud that causes the trouble. Unless mud is removed immediately the finish will come off with it. The most common cause for the bad appearance of a car is a run which lasts into the evening so that the owner or driver is fatigued with the journey when he returns home and decides to let the car remain as it is until the next opportunity for cleaning it. This generally means, if he is a business man, the next evening on his return from his place of business. By this time the mud has become so set to the varnish that when it is removed it will take a part of the polish with it and, as a result, the spot which was formerly occupied by the piece of mud will now be distinguished by a dull mark which will contrast with the finished parts all around it and spoil the appearance of the whole car. The remedy lies in only one procedure, for all the receipts for fluids to touch up the surface of the car after it has once become dull are but makeshifts as compared with the original finish. That is to remove the mud immediately after the car returns from the trip. There are many prepared renovators for the finish on the car and all of them are more or less good, but they are only for use after the bad spots appear. The true method of keeping the car's appearance in first-class condition is to prevent these spots from becoming permanent.

If you have a garage where you keep your own car, by all means have a hose accessible to it so that the mud can be washed off. All the rubbing in the world never produced a polished body after mud has once caked it. In fact, rubbing will remove the polish, for the grit will act as a scraper and spoil the finish. If there is no hose, remember that a gentle washing action is what is required in removing the dirt. In using the hose, it should be remembered that a gentle stream is beneficial while a hard, fine stream is often detrimental. Nothing is better than a big, soft sponge when a hose is not available, as with this the soaking action can be attained. This is what is essential in cleaning the car.

### Proper Care of Brass Parts

Next to the varnish on the body, the parts that require most care are those which have a polished brass finish. If the car is kept anywhere near the seashore the owner will be wise to relinquish his taste for brass for fittings which match the rest of the car in color. There is a marked tendency towards this practice in the last few years, and, although it must be admitted that a handsome brass polish is very effective in the way of ornamentation, still, if the owner is taking care of his own car, he will not often have the time nor the inclination to put in a large amount of arduous work shining brass. If there is a small boy about the house he will also heartily concur in the practice of coloring the lamps. Sea air is especially damaging, spreading a layer of verdigris over the brass. If this has sunk to an appreciable depth it is impossible to remove it from all the ridges and hollows in the brass and the parts will have to be sent to a shop to be buffed. A recipe which has been given for turning the lamps a handsome black after the owner has become tired of polishing them is as follows:

Dissolve in 1000 parts of ammonia water, 45 parts of natural malachite. All the parts to be colored are then thoroughly cleaned, all oil and grease especially being removed from the surface. The solution can be placed in a large pot or other vessel which is big enough to contain all the articles to be blackened. When these are all put into the solution and allowed to stand for a half hour the vessel containing the mixture and parts is then slowly heated, allowing the temperature to rise gradually until all the objects take on the desired depth of color. After this has been secured, the parts are removed, rinsed off and allowed to dry. If brass appeals to the owner more than black, he may make himself an inexpensive brass polish if he so desires. This is made as follows: one part ammonia, two parts alcohol and enough finely powdered calcium carbonate to form a creamy liquid. This is wiped over the part and allowed to dry. It is then wiped off and the part will appear clean. The alcohol and ammonia dissolve all the dirt and oxides while the chalk or calcium carbonate absorbs them, so that when the parts are dried off the impurities will be removed.

### Graphite Paint for Exhaust

The pipes about a car often take on a bad appearance which spoils the looks of the machine. The exhaust pipe will often take on a neglected, dirty and generally unkempt look very rapidly. Owing to the adverse conditions under which the pipe is compelled to work, that is, the heat and the impure gases with which it comes in contact, the paint rapidly peels off. A prominent automobile manufacturer solves this problem by using one-third graphite to two-thirds linseed oil. This paint sticks to the pipe and does not lose its blackness. It can be readily mixed up by any automobilist and is applied with a brush in the same manner as any other paint. With the use of this recipe ill-appearing exhaust pipes are not a necessity.

Many owners make the mistake of spoiling the appearance of the car by carelessness in making repairs on the road. Of course, they are not equipped with wood mallets and all the

other conveniences of the garage for preventing the denting of parts by hammer blows, but a little ingenuity will prevent much trouble of this character. One instance which showed the care of the owner was seen upon the road recently. A spring shackle bolt was found to have worked its way half out on account of the loss of the nut. As shown in the accompanying illustration, page 1332, the owner who did this particular job was thoughtful enough to place a pad between the hammer and the part to be hammered. A piece of wood should always be used in such cases, as it does not take long to spoil the appearance of the best-looking car if the owner carelessly uses tools on the exterior parts.

### How To Guard Against Rust

Clumsy tire-changing, where Q. D. rims are used, will cause damage. A hammer is often necessary in driving the tire into correct position. The hammer should be only used against the casing and not on the rings unless it is an absolute necessity, as the effects of the blow will be noticed in the appearance. Many times a careless operator will miss the rim and hit the spokes of the wheel or other parts equally susceptible to damage of this nature. Where the rims have become rusted in place it is necessary to use more or less strenuous means to remove them. This can be prevented by painting the rims with graphite, giving them a thin coat, which will be sufficient to safeguard them against rust.

Rust is an enemy that will often creep in when it seems that everything has been done to keep it away. Metal parts which are exposed to its ravages should be protected by an oil film. This is especially important where the car is kept along the coast. Even in other climates, however, dampness will spread a coat of the ill-appearing oxide over the metal fittings. As soon as it has made its appearance it should be removed, for the longer it has been allowed to remain upon the surface, the harder it will be to remove and the more the finish of the metal will be damaged by it. To remove a slight coating of rust the best method is with kerosene alone. If the parts to be cleaned are small they should be taken off the car and placed in a vessel of kerosene over night. After they are removed from this in the morning, or the next time that it is convenient to work upon them, rubbing with a soft cloth will take the rust off. Elbow grease is one of the most important factors in the removal of rust and should not be spared. It must be remembered, however, that it is a mistake to make too frequent a use of emery cloth in the brightening of tarnished parts, as it is liable to produce a scratched appearance.

### Care in Renovating the Radiator

Another part of the car which will often take on a bad appearance is the radiator. The mud which is splashed up from the road will collect upon its surface, and while the body is being cleaned off, this part will frequently escape the attention of the owner. The hose can be played upon this part also, but with no more force than was the case with the rest of the car; otherwise the dirt will be washed through and will reach spots where it will do more harm than if it were merely upon the surface. A fairly stiff brush can be used on the radiator without harm, as the surface is not delicate like the varnished parts of the body.

When the paint has finally worn off the radiator the car owner must not attempt to renew it with the ordinary paint which is used on metal surfaces. The warmth of the radiator will cause the paint to peel off much more quickly than at any other point. Special paint for the radiator may be secured from supply dealers. A feature which must necessarily be remembered in the painting of radiators is that the paint will not hold well on the smooth surface. The radiator should be first roughened a little with smooth sandpaper, according to an expert employed in a large New York service shop. He goes on further to state that the coats of paint should be very thin, as the thick paint will have a marked tendency to flake off.

# Power Loss by Friction

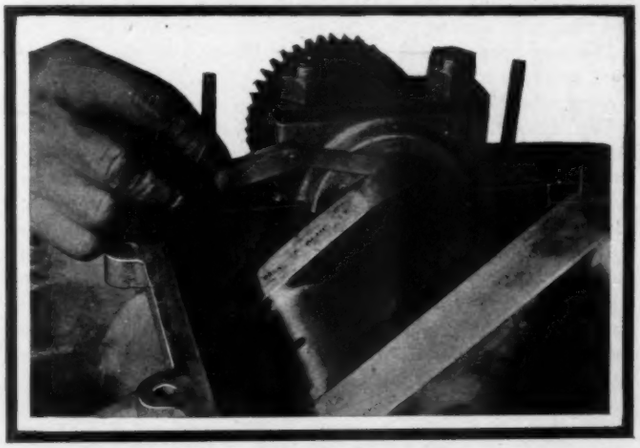
## Bearings Must Have a Slight Amount of Play to Insure Maximum of Operating Efficiency

ADJUSTMENTS which are too tight cause marked loss of power. A bearing on the crankshaft, for instance, which bears too closely against the revolving member, acts identically in the same manner as a brake on that member. It exercises a certain amount of braking power which has to be overcome before any useful work is done at all. There must be a certain amount of play in the bearings. The bearing is separated from the shaft or other moving part by the film of lubricating matter and, to do the work properly, this must be unbroken. This is a condition which will not be obtained unless the proper amount of clearance is allowed so that there is no augmented heating owing to the braking action of the tight bearing liner.

Closely allied to this subject is that of clearance in the neighborhood of bearings. The purpose of the clearance is to allow a certain amount of play to compensate for any slight inaccuracies which may have been made in the finishing of the active parts. This is clearly brought out in the case of the wristpin in the piston. All makers allow a clearance on either side of the upper end of the connecting-rod, regardless of the type of joint that they employ at that point. The purpose of this is to allow a freedom of motion which will forbid any binding effect due to a slight eccentricity in the cylinder boring. If this eccentricity occurs, the action of the piston can readily be pictured. The wristpin, being at a slight angle to the cylinder, will become in reality a modified guide upon which the piston will slide back and forth for the distance of the eccentricity of the cylinder, which might be as much as .001 in some motors, although it would not be as much as this as a rule. Even this amount, however, would be sufficient to cause binding if the clearance were not allowed.

Another point which is affected by the eccentricity of the cylinder is the clearance between the crank and the crankshaft bearing. Where multi-bearing crankshafts are used it is necessary to shave this clearance down as close as possible. So much so that on many makes of cars it is measured by means of a feeler gauge, as shown in the accompanying illustration. This allows a slight longitudinal movement of the crankshaft which compensates for the microscopical errors which occur even with the most accurate of grinding tools.

Play in other bearings has been noted before. In the wheel bearings this has been particularly brought out, as the power losses through too tight an adjustment are considerable. Play here is measured by feeling and adjustments should be gradual.



Using the feeler gauge in determining proper clearance

# Interested in Post-Hole Digger; When the Piston Rings Stick; Car Runs Better in Night Air; Full Directions for Making a King Split Log Drag; Route from St. Louis to Paw Paw

## Interested in Post-Hole Digger

EDITOR THE AUTOMOBILE:—I was very much interested in the post-hole digger, a description of which appeared in your last week's issue. Would you kindly tell me what the wheelbase of the truck is and how high the derrick boom is above the ground when the digger is in operation? I would also like to know the tread and overall length and would appreciate it highly if you would publish a diagram of the digger, giving these dimensions. What would the average time be in digging a hole in soft clay? What harm is done the digger in case a large rock is met with while digging? Is it necessary to remove the rock by hand before the hole can be dug? CURIOUS.

Wilmington, Del.

The accompanying diagram, Fig. 2, gives the dimensions for which you ask. The method of rigging up the derrick and digger are also shown and may be of use to you. Regarding what might happen if the digger should strike a large rock, it may be said that no damage would be done. An operator is always watching the progress of the digger, and when a rock is struck it will be apparent that the body of the truck will have its weight partially removed from the axle by a slight extension of the springs. When this is observed, the motor may be immediately stopped and the hole dug in another place. It is not necessary to remove the large stones by hand, as the digger will only be used for country work and the operator will have a large margin of distance in which to place the poles. In city work, no poles are planted, as a rule, as legislation generally requires that the wires be run underground.

## When the Piston Rings Stick

Editor THE AUTOMOBILE:—How is it possible to remove a stuck piston ring? When giving me this information I should be very much obliged if you would also tell me, through the Letters Answered and Discussed columns, what the cause of the rings sticking may be. I have never had my motor taken down and until now have not had the slightest trouble with it. Of late it has been losing power and I would like to take the trouble in hand and cure it. B. E. A.

Annapolis, Md.

The reason that the piston rings stick is because there is a thick carbon deposit beneath them. The chances are that you are tending towards an oversupply of lubricating oil. You do not mention the car or the oiling system, so that it is impossible to advise you any further than to say that it would be well to cut the supply down a little and note results. For your immediate guidance, it would be wise to soak the piston in kerosene overnight before attempting any rough and ready methods for removing the stuck ring. The kerosene will soften the carbon and permit the removal of the ring. It is a good practice to inject a little kerosene into each cylinder after the day's run is over. It will lessen the tendency of the rings to stick and will render the motor easy to start if it is left standing for any length of time.

## His Car Runs Better at Night

Editor THE AUTOMOBILE:—As a reader of your publication, can you enlighten me on the following question? Both myself and my friends have frequently remarked that our cars run smoother and seemingly with greater power and responsiveness to the throttle during the evening or nights than in the daytime. On opening the cut-out the exhaust is much more regular and the car runs much sweeter than during the day.

Is this due to the mixture being affected beneficially by the night air or can you explain or attribute it to some other cause? New York City. JAMES L. LONG.

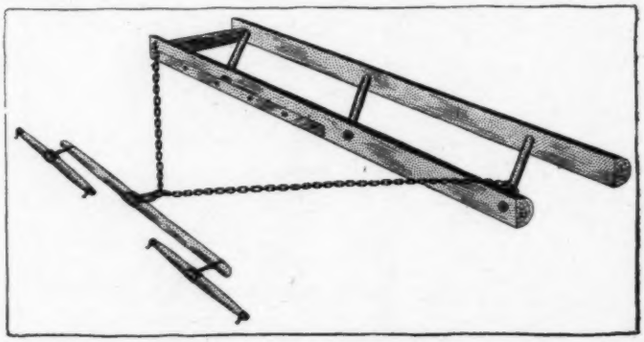


Fig. 1—Appearance of split-log drag when finished

There are two reasons for this. The first is the psychological effect of traveling through darkness. If you have ever ridden a bicycle at night you have experienced the same sensation; that is, it seems as though you were traveling faster with the same amount of effort. This is due, no doubt, to the fact that the only objects which can readily be seen are those which are near at hand and they seem to flit by very rapidly owing to their proximity. The second reason is a slightly beneficial action on the carbureter owing to the moisture in the air. The finely divided moisture contains additional heat units which are set free when the water is turned to steam. These are used in the cylinder and a slight increase in power is felt. Experiments were at one time conducted along these lines to introduce a small quantity of water into the cylinder in order to increase the power of the motor, but as the gain was so slight in comparison with the complications of mechanism necessary the work was abandoned.

## Wants to Make Split Log Drag

Editor THE AUTOMOBILE:—Would you kindly inform me how to go about making a split log drag? READER.

New York City.

THE AUTOMOBILE has received three inquiries from different readers regarding the making of this tool and they may all be taken up herewith:

The log is split directly in two and smoothed down on the flat

faces. These two parts are then laid as shown in Fig. 1, with the two flat faces in the same direction and 32 inches apart. Three or more stout cross-members are then placed as is shown in the illustration. The cross-members are put in at about a 40-degree angle so that it is not readily possible to pull them out in using the drag. The drag may be composed of elm, elder, cedar or maple. The length of the log should be about 8 feet and it should be 10 inches in diameter. The cross-members are held in place by inserting them in 2-inch augur holes drilled in the two half-logs as shown in the illustration. The left end of the forward log in the illustration overlaps the rear log for a distance of about 6 inches. This is the ditch end of the log in driving along the right side of the road which should always be done with this type of drag. The cross-members are formed by three 2½-inch stakes shaved down to 2 inches at the ends to fit into the holes in the logs. The best way is to drive all the cross-members, including the straight brace shown in the illustration, into the forward half-log. The holes in the rear half can then be drilled on the proper slant. The straight brace may be fastened by screws, if desired, or it may be fitted into notches. All the other cross-members should be thoroughly wedged in place after the rear log is driven on. A metal facing may now be placed on the front log if desired. This consists of a strip of iron 3 feet in length, 3 inches wide and about 3-16 inch thick. It is drilled every 6 inches and large wood screws are fitted to hold it in place. The trace chain is of regulation length but cut so that the point of connection to the harness is about 12 inches off center as shown. By placing other rings in the chain length the drag may be made to cut deep or shallow, according to the angle at which it is driven over the ground.

—

## Route from St. Louis to Paw Paw

Editor THE AUTOMOBILE:—Will you please tell me through an early edition of THE AUTOMOBILE the shortest and best route from St. Louis to Chicago and from Chicago to Paw Paw, Mich.? Also the probable condition of the roads. MRS. A. A. H.

St. Louis, Mo.

The best route would lie through Springfield, Bloomington, Chicago and South Bend to Paw Paw. Starting from St. Louis out Missouri avenue into Ninth street, the route will lie along the trolley line to Collinsville into Marysville. From here on poor roads can be expected, which, while fair in settled weather, are very bad in wet weather. Follow South Buchanan street into Edwardsville. The course should then be direct through Worden, Staunton, Mt. Olive, Litchfield, straight through on State street and out via Glenarm to Springfield. From Springfield to Bloomington, Ill., the roads are fair in good weather, but very bad after rains. The road out of Springfield passes the State Fair Grounds through Riverton, Spaulding, Elkhart, Lincoln and Shirley, striking asphalt on Morris avenue. This should be followed past the lake and amusement park into Bloomington. From Bloomington to Chicago the first two-thirds of the roads are either fairly good dirt or prairie roads, while the remainder are practically all gravel or macadam. Follow out Main street into Towanda, thence through Lexington, asking for local direction of best road to Chenoa. Pass through center of town on road to Pontiac, through Cayuga Station, Odell, Dwight, Morris, Minooka and Joliet. Be careful to avoid running down grade into Lockport. A turn which is hard to identify must be taken here, 23.1 miles from the business center of Joliet. It is a diagonal cross-road upon which it is necessary to turn left. This avoids the route through Riverside, which is reported in bad condition. Enter La Grange on Fifth avenue. Turn left on first four corners on road leading to Garfield Park and thence into Chicago. Chicago to South Bend is over good gravel and macadam roads for the entire distance. Pass out Chicago through South Chicago, following trolley over Calumet River. Turn left on Indianapolis avenue with trolley to Hammond. Turn left around cemetery to Highlands and straight on through Hobart along railroad into Valparaiso, through Westville, Pinhook, La Porte and New Carlisle, following Michigan avenue trolley line to end. Thence into Main street, South Bend. From South Bend to Paw Paw the roads are good gravel with sand. From the Court House in South Bend cross long iron bridge across St. Joseph River and turn into Leeper avenue past Notre Dame University to Niles. Turn across railroad bridge through Summerville, Pokagon, Dowagiac and Decatur, turning left at end of road direct into Paw Paw. The distances are as follows: St. Louis, Mo., to Springfield, Ill., 108.7 miles. Springfield to Bloomington, Ill., 78.1 miles. Bloomington to Chicago, 149.3 miles. Chicago to South Bend, Ind., 101.6 miles. South Bend to Paw Paw, Mich., 50 miles. The routes, as outlined, are fully covered in *The Automobile Blue Book*, volume 4.

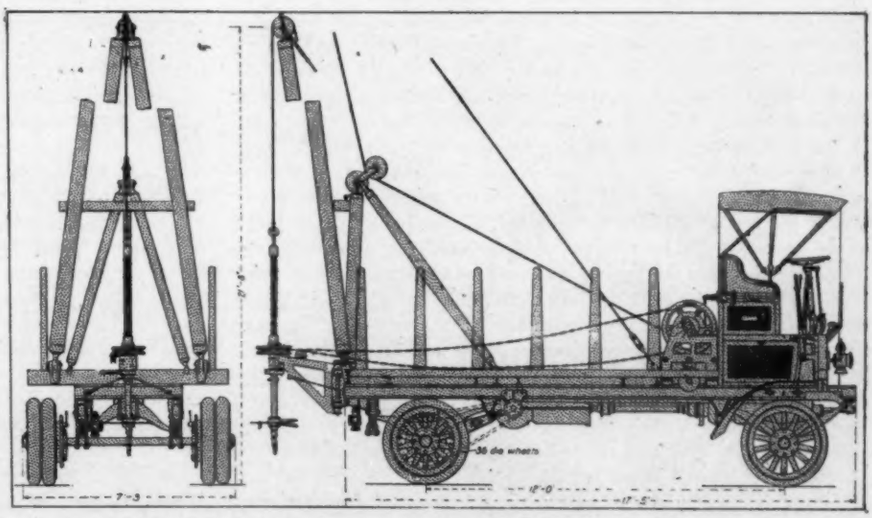


Fig. 2—Diagram showing the dimensions of Mack post-hole digger and derrick.

—

## Trouble with Sticking Coils

Editor THE AUTOMOBILE:—I have been having trouble with the contact points on my coils. The platinum points seem to stick. I have tried everything known to remedy this trouble. I have purchased a new coil and I still have the same trouble. I have gone over the wiring very carefully and have found no short circuits. The battery lasts well and I am sure is not too strong. I have cleaned the platinum points several times, but they have again become blackened after an hour's use. A remedy for this trouble would be appreciated very much.

Washington, D. C. GEORGE E. STRINGFELLOW.

The trouble is simply that you have the contact points too close together. If you will take a light file and dress the platinum points down flat and then adjust them so that a gap of about 1-32 inch is left, the trouble will no doubt disappear.

—

## Figures on Canadian Exports

Editor THE AUTOMOBILE:—Would be greatly indebted for the following information: What were the Canadian automobile exports through Montreal in 1910 as compared with 1909?

Montreal, Canada. CANADIAN.

The value of Canadian exports passing through Montreal during 1910 was $43,650. In 1909 it was $28,400.

## Right Drive and Center Control

EDITOR THE AUTOMOBILE:—I submit a drawing of what I consider the ideal car for comfortable touring for two passengers. The car has a wheelbase of 122 inches. The motor is of the T-head type with a bore of 5 inches and a stroke of 5 1-2 inches. The cylinders are offset 3-4 inch. The oiling system is of the force-feed type through a hollow crankshaft. The motor is equipped with a model L Schebler carbureter and a Bosch dual ignition system. The cooling is accomplished by a cellular type radiator and a centrifugal pump. The clutch is of the leather-faced cone variety.

The gearbox, containing the gears for four speeds forward and reverse, is hung from a subframe. The front and rear axles are of the Timken make, as are all the bearings used in the car, The rear axle is floating.

The springs are of the semi-elliptic type, the front ones measuring 43 by 2 inches, and the rear 52 by 2 inches. There are two gasoline tanks, the larger one holding 38 gallons and the smaller having two compartments for carrying 10 reserve gallons of gasoline and 10 gallons of oil.

There are electric lights which are operated by the Ward-Leonard automatic system. The balance of the equipment includes 34 by 4 1-2-inch Michelin tires on Dorian demountable rims, a Klaxon horn, a 100-mile Warner speedometer, Disco self-starter, Truffault-Hartford shock absorbers and a Kellogg four-cylinder air pump.

The brakes are internal expanding and external contracting and they are lined with Raybestos.

The car carries two passengers and has right side drive and center control.

Alameda, California. GEO. H. MASTICK, JR.

—

## Specifies Hindley Worm Drive

Editor THE AUTOMOBILE:—As almost everyone else has sent in his idea of the ideal car for 1913, I am sending mine along to keep the rest company. My car would have room for from two to five passengers, according to requirements. The wheelbase would be 115 inches. The motor would be patterned somewhat along the Rutenber motor lines. It would have four cylinders, 3¼ inches by 5½ inches. The cylinders would be cast in block with valves in the heads. A Remy magneto would be used, having lighting arrangement and being of dual type. A Rayfield carbureter would also be used.

The vanadium steel frame would be underslung, double dropped and inswept at the front. Wire wheels of the Whitworth pattern would also be included. These would have three rows of spokes. The tires would be Goodyear non-skids, 4½ by 34 inches. The springs would be of vanadium chrome steel. The shaft would be enclosed in a torque tube, which would be securely fastened to the cross member of the frame. The rear axle would be floating, while the drive would be through a Hindley worm. The transmission would be selective, four-speed, 2½ to 1 on high and direct on third. The clutch would be a Hele-Shaw V-disk type. All gears would be of chrome nickel steel, and ball and roller bearings would be used throughout the machine wherever feasible.

All steels used in the car would be of electric furnace manufacture. F. A. ROSE.

Two Harbors, Minn.

## A Car of Rear-Radiator Design

Editor THE AUTOMOBILE:—Like a number of your readers, I have resolved to set down what I would consider to be the ideal car, not alone for next year, but for the future. The country in which I live is very hilly, and I would require that all parts of this phantom car be of very staunch construction.

The motor would be a six-cylinder T-head design, having bore of 5 inches and a stroke of 5 1-2 inches. This is nearly square, but such a power plant is capable of developing full 60 horsepower under all conditions. The valves, owing to the T-head design, would be made extra large, allowing for free passage of the gases to and from the cylinders. The valve stems and valve springs would be inclosed to exclude dust and dirt and to aid in the silencing of the motor. The cylinders would be cast in blocks of three, this being the largest number which I believe it is practicable to cast in one piece when the possibility of replacement is taken into consideration. Should a cylinder become scored, cracked or otherwise damaged so that replacement is necessary, the foreign practice of casting all of the cylinders in one block makes necessary the scrapping of the other five. If the cylinders are made in threes, only one set must be replaced. The monoblock casting of six cylinders, of course, makes for very simple design so far as manifolds and water-jackets are concerned—from the outside. But when the complicity of the internal structure of such castings is considered the cost looms up in no small proportions, to say nothing of the number of defective castings resulting.

The radiator would be mounted in the rear of the motor next to the dash. This would allow the magneto to be mounted in front of the motor as in the Renault cars. By this arrangement the magneto is directly driven from the camshaft and does not require the use of an extra magneto shaft. Simplicity is thus gained. The magneto distributer need not be placed on the magneto shaft, but at the side of the motor, so as to be more easily controlled from the spark levers. This magneto would be of the Bosch double type, and there would be two sets of spark-plugs mounted in the cylinder heads. Both sets of plugs would operate simultaneously when the car was running under normal conditions, but only one set would be used for starting the motor with the storage battery.

The carbureter would be of a venturi-tube type, the latest design of Maco being used. This carbureter appears to be very easy of adjustment, and as the aim is for accessibility and simplicity, this feature would recommend it. There would be a lever under the steering wheel on the steering column for regulating the auxiliary air valve of this carbureter.

The cooling system would be very complete and positive. The water pump would be assisted in maintaining perfect circulation through the use of a radiator having large honeycomb mesh tubes. It would be in the rear of the engine, as already stated. The water pump would be of peculiar design. It would be a sort of multiple arrangement geared from the camshaft on the control, or right, side of the motor. A lever on the dash would be in connection with a clutch between the pump and the camshaft, so that one of the two rotors of this multiple pump could be cut out when desired, thus pumping less water than when both rotors were in operation. When the engine would be running along on high the second rotor could be declutched by simply throwing the rod within reach of the driver. But when the engine would be working hard in negotiating

hills and in more or less hilly country, then throwing the lever in the opposite direction would bring the auxiliary rotor into operation. In a way this would govern the water circulation to correspond to the working of the engine. This is practically what the thermo-syphon cooling water circulation system aims to do automatically.

Passing to the transmission, this unit would be mounted amidships of the chassis and it would be supported in a sub-frame at three points. There would be four speeds and a reverse. The direct drive would be on third speed, while in driving on the highest, or fourth, speed, the gearing would be greater than one. This speed could only be used on level roads where the torque required is low.

The propeller shaft would be of large proportions, and it would be inclosed in a torque tube, the front end of which would be fastened to the rear member of the transmission case sub-frame by a U or spider arrangement. The rear end of this tube would be securely bolted to the differential housing. It would be large enough in diameter to accommodate the two universal joints, one of which would be located just to the rear of the gearbox and the other just in front of the differential housing.

The differential housing and the gears would be substantially made, while the rear axle would be of the floating type. Large brakes, 14 inches in diameter and 3 inches wide, would be mounted on the rear wheels. The service brake and the emergency brake would both be internal expanding, lined with a good brake lining material. The frame would be of channel section, reinforced by wooden members, making a very compact and strong arrangement.

Everything in the way of equipment to enhance the comfort of the passengers would be included. Electric lights, electric horn, two spare tires in rear, self-starter and the like would be found in the car's makeup. The gasoline tank would be under the front seat, and there should be a generous emergency supply tank. The new type of cantilever-constructed top would be used. This is very easily and quickly raised.

I am confident that it would take considerable abuse and bad roads to break my car, if built strictly to my notion.

Chicago, Ill. ENTHUSIAST.

—

## Wants a Two-Passenger Speedster

Editor THE AUTOMOBILE:—My ideal car for 1913 is a two-passenger speedster. The motor should be a four-cycle, four-cylinder type, having a bore of 6 inches and a stroke of 5¾ inches. The valves should be 3½ inches in diameter. The cylinders should be of the T-head design and cast in pairs, and the valve ports should be machined. The spark-plugs should be placed in the heads of the cylinders. There should be large waterjackets so that the motor would be kept comfortably cool at all times. A hot, steaming radiator is a very disagreeable thing to have. In this connection I might state that a large radiator should go with the ample waterjackets as a small one is almost invariably a source of annoyance.

The crankshaft should be made of chrome vanadium steel, and it should have three large ball bearings. The lubrication should be accomplished by a combined splash and force feed system, while the cooling should be by a belt-driven fan and a pump. I would use a Bosch dual ignition system and a Rayfield carbureter.

The transmission should be of the selective type with four speeds ahead and one reverse; direct drive on high. There should be chain drive, the chains to be enclosed in oil cases.

The drive should be right side, with steering wheel 18 inches in diameter. The clutch and brake pedals should be in the usual positions, with an accelerator pedal placed to the right of the brake pedal. The clutch should be a multiple dry disk design; fibre against steel. Semi-elliptic springs should be used throughout.

The body should be built low and the seats placed on the floor, the front being raised about 3 inches. The steering post should be set at the correct angle to conform with the position of the seat. A 50-gallon gasoline tank should be placed behind the seats and a 10-gallon auxiliary oil tank at the rear of the gas tank, both being built to withstand a maximum pressure as regulated by a hand pump.

The equipment should consist of tire irons to be placed in the rear of the oil tank and large enough to hold the two spare tires, 10-inch headlights. Prest-O-Lite gas tank, oil tail light and Klaxon horn. Kelly-Springfield tires, size 5½ inches by 37 inches, should be used all around.

This car could be built for about $5,500, using the very best of materials and labor. It would weigh in the neighborhood of 3000 pounds. H. D. HALL.

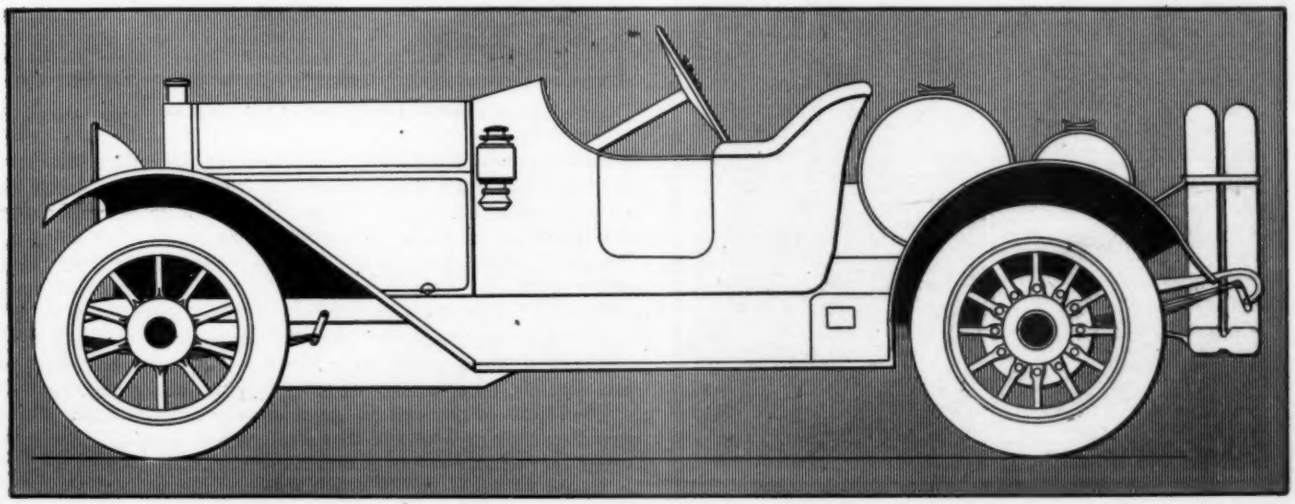
Cleveland, Ohio.

—

## Likes a Roadster Body

Editor THE AUTOMOBILE—In writing my ideal car I will not attempt to describe the motor. I believe when you buy a car you get just what you pay for as far as the motor is concerned. What I would say, however, is that I believe a man with a small family, say three altogether, should buy a roadster, because he is then free to go out when he pleases without being looked upon as a miser by all his ride-desiring friends and relatives.

Burlington, Vt. C. G. PARDEE.



Roadster body with a wheelbase of 122 inches; the ideal of an Alameda, Cal., reader

# Testing Wheel Strength

## Wire, Steel and Hickory Types Tried Out Under Conditions Closely Approaching Road Service

### One American Hickory Wheel Superior to One Specimen of Wire and Both Steel Types

THE battle of the wheels is still on. In Europe the wire wheel has the advantage, while in this country the wooden construction still holds the center of the stage. There are adherents to each of these types, as well as those who advocate the general adoption of the sheet steel construction.

In the early days of the automobile in this country the wire wheel was extensively used, but it lost ground, partly through the general opinion that it was unsightly and partly because it is more difficult to keep free from mud and in a presentable condition, due to the net-work of cross wires. These do not loom up as very great objections to its use, and the minute the American public decides that it wants it on its cars, then the wire wheel manufacturer's problem is solved. It is just as difficult to sell a car in England, especially, which is not equipped with wire wheels as it is in this country to sell one which has any other except wood artillery wheels.

The success of the wire wheel construction in this country, however, depends largely on the showing which it makes within the next few months. Numerous tests are being conducted by more than one of the large manufacturers of automobiles with the object of determining just what the status of the wire construction is in comparison with the wooden types. Up to within a year little has been known of the relative strengths of the various wheel constructions, and it is only now that the engineers are awakening to the possibilities of the wire wheel.

The manufacturers of these wheels have been very consistently advertising them to the American market, which appears to be waiting for more conclusive proofs of their worth.

A very valuable test which should do much to promote the cause of the wire wheel was conducted recently by the pioneers in the wire wheel business, Rudge-Whitworth, Ltd., Coventry, England. This test was designed to show the relative strengths of wire, wood and steel wheels when subjected to the blows from an impact pendulum.

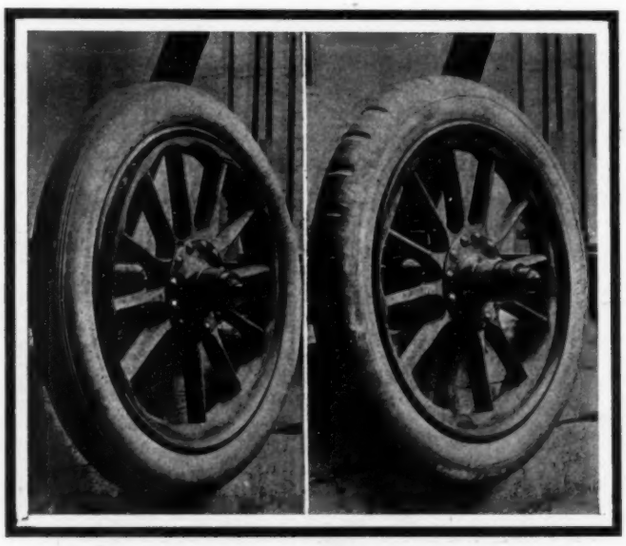
The experiment was carried out in the same manner as that which was conducted before the visiting Society of Automobile Engineers last November, but it was taken one step farther. When the American engineers witnessed the test made last year, wooden wheels of French hickory were tested as well as the Rudge-Whitworth type of wire wheels, with the result that the latter clearly demonstrated their superiority over the wooden types. In the face of this failure of the French wheels to hold their own, the visiting American engineers asserted that the French hickory is very inferior to the American variety, and that had the best quality of American hickory been used, the wheels would have shown up as well, if not better, than the wire wheels. They stated that it was unfair to judge all wood wheels by the very inferior French hickory types, which, while well enough manufactured, were made of a variety of wood which is far below the American in quality and in seasoning.

Acting on this suggestion that American wheels be used, the Rudge-Whitworth firm accordingly sent to this country for a set of the best possible examples of hickory wheels. At the same time a set was also procured from France, as well as a set of steel wheels. There is every reason to believe that at least the American hickory wheels were the best of their kind, as they were specially ordered and the purpose explained to the maker.

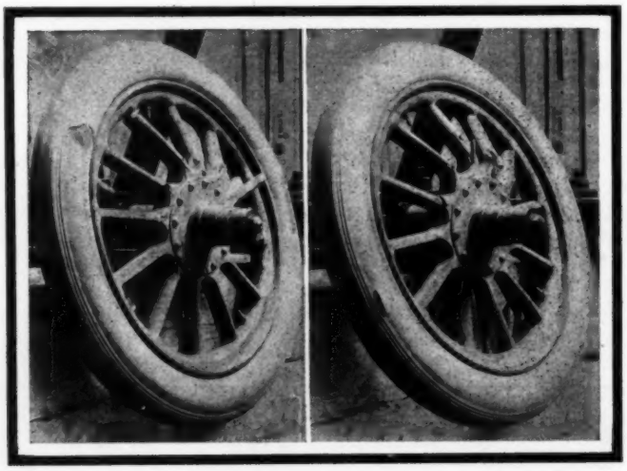
In making the tests, a massive pendulum having a length of about 11 feet and carrying a bob weighing 480 pounds was used. This pendulum was allowed to swing through measured arcs and to strike against the rim of the wheel under test, which was mounted on a heavy iron spindle firmly fixed to a concrete foundation. An idea of this mounting may be gained from the illustrations.

This method of test is considered to be a better measure of the relative merits of the different types of wheels than the formerly used static test, which is simply a steady pull applied to the wheel, and increasing in force until it breaks. This is not a shock test as is the pendulum arrangement, the sudden blow imparted in the latter corresponding to the quick side thrust to which a wheel is subjected in striking a curb or other obstruction when the car is going at considerable speed. The value of the wheel depends upon its ability to withstand severe shocks and at the same time have sufficient "give" to it to take up all possible, thus preventing the shock from being transmitted to the axle, differential gears and other driving mechanism. The condition of a wheel after severe shock is also important, for on this depends the possibility of temporary use and repair.

The results of the tests are given on page 1339. Two American, two French, two wire and two steel wheels were tested. Each wheel carried an 880 by 120 millimeter tire, fully inflated so that it would be as nearly as possible in the same condition as it would be when mounted on a car.



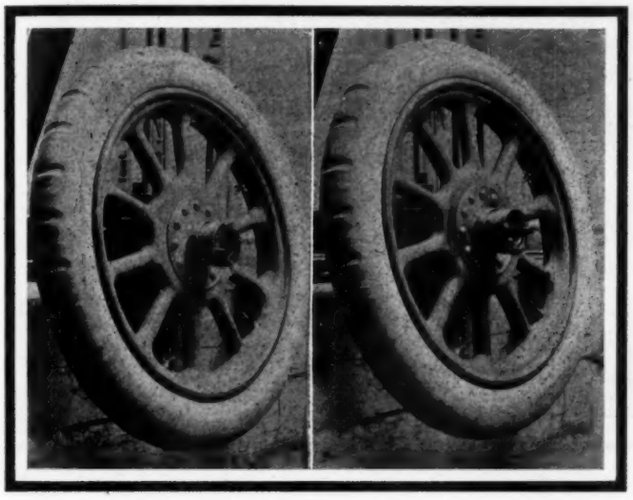
How the American wheels withstood the pendulum blows



Showing the shattered condition of the inferior French wheels

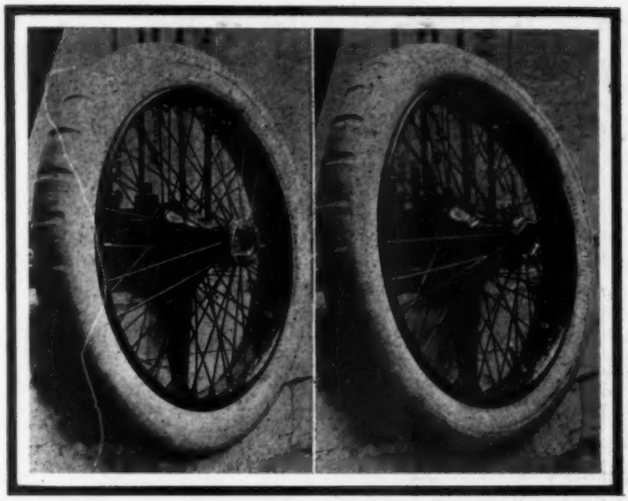
Owing to the difference in the weights of the wheels, a direct comparison is impossible, but a fairly good means of comparison is obtained by multiplying the total permanent deflection in inches by the weights of the wheels. This was done for the fourth and fifth blows, the results being set down in the last two columns of the table. The minimum deflection, together with the least possible weight, are both desirable features and hence the lower the product of these two, the greater the merit of the wheel. Or, putting it the other way around, the increase in wheel weight would naturally mean a decrease in permanent deflection.

With this in view, the tables easily bring out the slight superiority of the wire wheel over even the best type of American



The steel wheels buckled at the hubs, deflecting considerably

hickory wheel. The lowest products of the fifth blow show that one of the American wheels was superior to one of the wire wheels, but inferior to the other. The other wheel from this country proved inferior to either of the wire wheels and to one of the steel wheels. The French hickory types were completely outclassed, bringing out forcibly the assertion made by the



One wire wheel slightly damaged; several spokes of other broken

American engineers that the French wood is not to be compared with properly seasoned hickory from this country.

On this product basis, the special advantage to the wire wheel comes in the low weight, while the American wheel suffers, since it is the heaviest of the types tested. The steel wheel does not show up as well as might be expected, being inferior to either the American wood or the Rudge-Whitworth wire types, despite its light weight as compared with the American product.

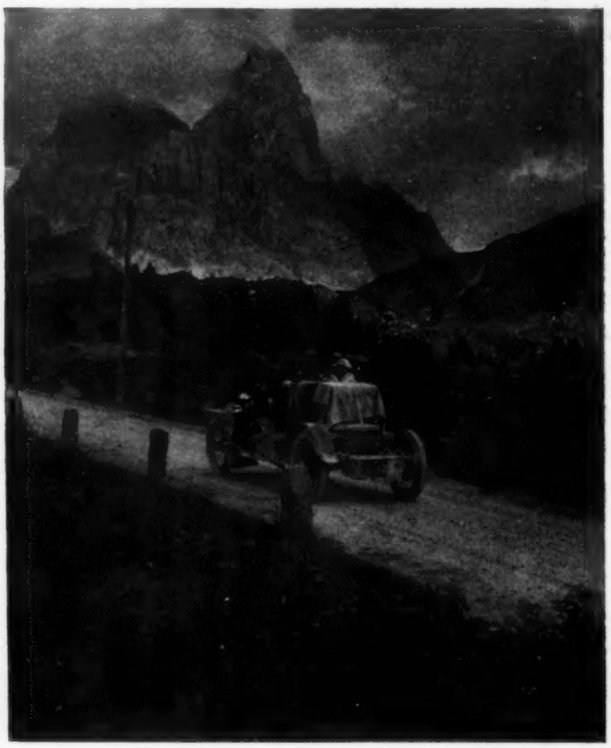
An oak wheel tested before the American society last November gave a product of 252 when deflection of a blow corresponding to the fourth of this test was multiplied by wheel weight. In comparing this high figure with the table herewith, the criticisms against the use of oak are clearly justified.

This poor showing of oak wheels is one of the reasons which may be advanced for the great popularity of the wire wheel in England, in particular, since many authorities hold that in a climate such as that of England the liability of hickory to warp prohibits its use. This wood being eliminated, there is only one logical wheel to use, and that is the wire type, the oak wheel being out of the question due to its extreme inferiority.

**TABLE SHOWING PERFORMANCE OF VARIOUS TYPES OF WHEELS RECENTLY TESTED AT COVENTRY, ENGLAND**

| Type of Wheel | Total Permanent Deflection in Inches | | | | | Weight of Wheel, Pounds | Total Permanent Deflection Multiplied by Wheel Weight | |
|---|---|---|---|---|---|---|---|---|
| | Blow No. 1 | Blow No. 2 | Blow No. 3 | Blow No. 4 | Blow No. 5 | | Blow No. 4 | Blow No. 5 |
| American Hickory..... | 0.21 | 0.32<br>1 spoke cracked | 0.84<br>Rim moved | 1.41<br>Rim moved<br>¼ felloe split,<br>3 spokes broken | 2.20<br>Felloe smashed | 47 | 66.27 | 103.4 |
| American Hickory..... | 0.28 | 0.46<br>2 spokes cracked | 0.67<br>Flange cracked | 0.89<br>4 spokes cracked | 1.17<br>2 bolt heads cracked. Rim held | 46 | 41.00 | 54.0 |
| French Hickory..... | 0.25<br>4 spokes cracked | 0.41 | 0.64<br>5 spokes cracked | 1.07<br>7 spokes broken | 4.60<br>Smashed | 39.5 | 42.26 | 181.7 |
| French Hickory..... | 0.27<br>3 spokes split | 0.45<br>6 spokes broken | 0.84<br>1 spoke broken | 4.88<br>Smashed | ..... | 38.75 | 188.00 | ..... |
| Steel Plate..... | 0.53 | 1.05 | 1.60 | 2.17 | 2.79<br>Hub buckled | 37.75 | 81.90 | 105.4 |
| Steel Plate..... | 0.59 | 1.06<br>Buckled at hub | 1.60<br>No welding defects | 2.14 | 2.80<br>Hub badly buckled | 36.5 | 78.10 | 102.2 |
| Rudge-Whitworth Wire..... | 0.31 | 0.55 | 0.82 | 1.18<br>5 spokes broken<br>2 nipples pulled through | 2.56<br>2 spokes broken<br>2 nipples pulled through | 30.0 | 35.40 | 76.8 |
| Rudge-Whitworth Wire..... | 0.36 | 0.60 | 0.90 | 1.16 | 1.49<br>No damage | 29.2 | 33.80 | 43.5 |

The famous Sella group as seen from the Pordoi Pass



The Cimone della Pala (the Matterhorn of the Dolomites), a view on the Rolle Pass

# Austrians to Tour Alps

## Strenuous Tour Will Include Climbing of Twelve Alpine Mountain Passes and Six Speed Runs

VIENNA, May 28—This present season is singularly devoid of important fixtures; on the European program there are but two events of international interest—the Alpenfahrt, or reliability tour of the Alps, organized by the Austrian Automobile Club and the associated bodies, while the other event is the Grand Prix 2 days' race at Dieppe on June 25 and 26. The Alpenfahrt will be contested from June 16 to 23, and it will constitute one of the most strenuous touring events that have yet been held. Standard touring cars are alone eligible; the managing committee, which contains no trade members, will decide whether the vehicles entered come inside this definition or not.

Starting from Vienna on June 16, after a technical examination on the previous day, the cars will proceed by way of the Semmering and Tauem pass to Spittal, 250 miles; the second day to Tauffen pass, 6,500 feet elevation—Mendel, and Madonna di Campiglio, on the northern borders of Italy—265 miles; on the third day, to the Brocone and Rolle passes, both over 7,000 feet high, the Pordoi pass, with its fifty-six hairpin corners, to Toblach—220 miles. The strenuous run is continued on the fourth by way of the Kreuzberg and Wurzen passes to Trieste, on the shores of the Adriatic—a journey of 200 miles over very severe country. A day of rest will then be allowed so that the drivers may have an opportunity of preparing for their further labors; the foreign contestants and visitors will probably occupy the day by the sea journey to Venice and back. Friday, the sixth day, will provide a run of 135 miles over the Monte Maggiore Pass to Laibach; and on the seventh day the journey will be continued northwards to Graz—165 miles away. As a final run on Sunday, the eighth day, some 225 miles via the Praebuhel and Niederalph passes have to be covered before Vienna is once more reached.

On each of the passes—and twelve of the biggest ascents in the Tyrol have to be accomplished—the cars will be timed; in addition, there are to be six speed runs on the level. The marking for reliability is most stringent; 1 minute will be allowed each morning to start the engine; after this, every minute occupied, whether to fill tanks, to lubricate, or to effect adjustments, will mean a penalty of 1 mark. Each car is to carry an official observer—a member of the Royal Austrian Club—and, in addition, the bonnet and under-shield of the cars will be sealed.

The prizes are arranged on a liberal scale, and range from the Great Alpen-Wander-Preis of 10,000 kronen to the silver plate which will be given to every driver acomplishing the journey according to the rules. Some very high notabilities are included in the list of entries already received—and 3 weeks yet remain for this list to be augmented. Prince George William, of Brunswick, is to drive car No. 1; Prince Elias von Parma will start as No. 9, while Erzerzog Karl Francis Joseph is No. 23. The other forty contestants already placed include four members of the Austrian nobility.

The foreign representation includes a Daimler-Knight, Rolls Royce, four Knight Minervas, three De Dions and many of the leading German cars. Further British entries are promised, and a total number of about sixty cars are expected to compete.

## Four-States Tour Route Approved

INDIANAPOLIS, IND., June 10—The officers and board of directors of the Indiana Automobile Manufacturers have approved the route for the second annual Four States Tour, after it had been slightly modified, and also approved the maps, rules and other matters going into the route book, which will be one of the most novel of the kind ever carried by a band of tourists.

The route for the tour covers 1,283.9 miles through Ohio, West Virginia and Kentucky, including nearly 300 miles in Indiana.

The itinerary in revised form is as follows: July 9, Indian-

apolis, Kokomo, Peru (noon), Wabash, Huntington and Fort Wayne; July 10, Fort Wayne, Van Wert and Lima; July 11, Lima, Findlay, Fostoria, Fremont (noon) and Tiffin; July 12, Tiffin, Bucyrus, Mansfield (noon), Ashland, Barberton, and Akron; July 13 and 14, tourists rest in Akron; July 14, Akron to Canton; July 15, Canton, Massillon, Canal Dover, New Philadelphia, Cadiz (noon) and Wheeling, W. Va.; July 16, Wheeling, Cambridge, O. (noon), New Concord and Zanesville; July 17, Zanesville, Newark and Columbus; July 18, Columbus, Lancaster, Circleville and Chillicothe; July 19, Chillicothe, Waverley and Portsmouth; July 20, Portsmouth, Ironton, Coal Grove, Ashland, Ky., Catlettsburg, Kenova, W. Va., and Huntington, W. Va.; July 21, tourists rest in Huntington; July 22, tourists take boat to Maysville, Ky., from Huntington at 3 a. m., Maysville (noon), Paris and Lexington; July 23, Lexington, Frankfort, Shelbyville and Louisville; July 24, Louisville, New Albany, Ind., Scottsburg, Seymour, Columbus (noon), Franklin and Indianapolis.

—

## Reduce Stroke for Grand Prix Car

Little has come to light about the construction of the vehicles which will take part in the Grand Prix and in the concurrent Couple de l'Auto race. A visit to the factory where the four Gregoire cars are being prepared for the event has disclosed, however, that the stroke has been reduced in the motors of these cars, as compared with the Gregoire cars which were proved fast and reliable in the speed events of 1910 and 1911. These had 80 millimeters bore with 160 millimeters stroke. The bore in the new cars is the same, but the stroke is 149 millimeters. Another change is that the gear box gives six speeds, "by two gear wheels and two pinions," which arrangement will permit the driver to let the motor work at full speed, irrespective of the gradient of the road. The cars are very low and barely exceed the weight of 800 kilograms prescribed in the regulations. The company is also preparing a fifth car of different construction which may be substituted for one of the four regular ones at the last moment if the trials should justify such a step. In the motor for this car, each cylinder has its own carbureter and the water circulation system includes the bottom of the crankcase, the ball bearings of the crankshaft and the spark-plugs. The gear box has four speeds of which three are direct. On the trial bench this motor has given 80 horsepower at 3,000 revolutions.

# Calendar of Coming Events

—

## What the Months Ahead Have in Store for the Automobilist—Shows, Conventions, Race Meets, Etc.

—

### Shows, Conventions, Etc.

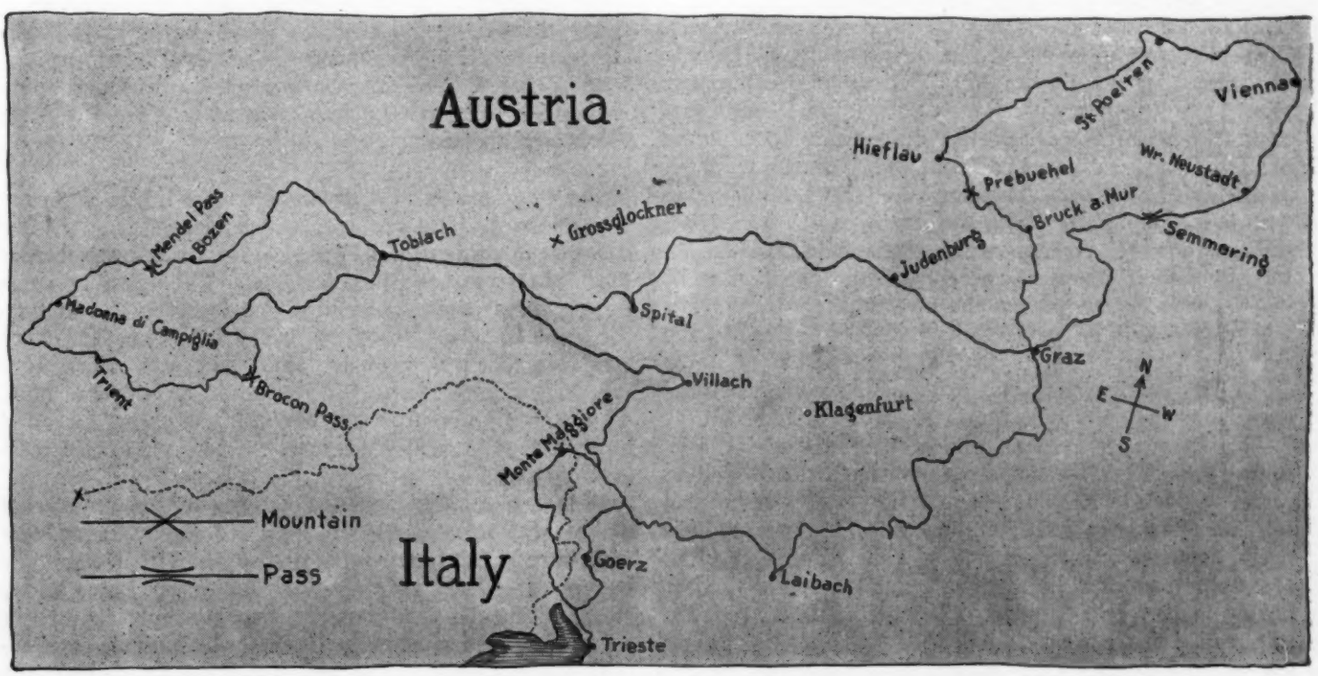
| | | |
|---|---|---|
| June | 17-22 | Milwaukee, Wis., Convention and First Annual Show, National Gas Engine Association. |
| June | 20 | Philadelphia, Annual Truck Parade of the Philadelphia *Inquirer*, Philadelphia Automobile Trade Association. |
| June | 27-29 | Detroit, Mich., Summer Meeting of the Society of Automobile Engineers. |
| July | 10-20 | Winnipeg, Man., Canadian Industrial Exhibition. |
| July | 12-14 | Logan, Utah, Fourth Annual Intermountain Good Road Convention. |
| July | 22-26 | Detroit, Mich., Cadillaqua Week. |
| Sept. | 23-Oct. 3 | New York City, Rubber Show, Grand Central Palace. |
| Dec. | 7-22 | Paris, France, Paris Automobile Show, Grand Palais. |
| Jan. | 11-25, 1913 | New York City, Thirteenth Annual Show, Madison Square Garden and Grand Central Palace, Automobile Board of Trade. |

### Race Meets, Runs, Hill Climbs, Etc.

| | | |
|---|---|---|
| June | | Portland, Me., Hill Climb, Maine Automobile Association. |
| June | | St. Louis, Mo., Reliability Run, Automobile Club of St. Louis. |
| June | 18-20 | Washington, D. C., Endurance Run, Automobile Club of Washington. |
| June | 20 | Algonquin, Ill., Annual Hill-Climb, Chicago Motor Club. |
| June | 20-22 | Portland, Me., Reliability Run, Pine Tree Motor Contest Association. |
| July | 3-5 | Belle Fourche, S. Dak., Second Annual Track Meet. |
| July | 4 | Petersburg, Ind., Track Meet. |
| July | 4 | Riverhead, L. I., Road Race. |
| July | 4-5 | Taylor, Tex., Track Meet, Taylor Automobile Club. |
| July | 4-6 | Old Orchard, Me., Beach Meet, Old Orchard Automobile Association. |
| July | 5-6 | Tacoma, Wash., Road Races, Tacoma Automobile Club and Tacoma Carnival Association. |
| July | 15 | Milwaukee, Wis., Reliability Run, Wisconsin State Automobile Association. |
| Aug. | 8-10 | Galveston, Tex., Beach Meet. |
| Aug. | 23-24 | Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club. |
| Sept. | 2 | Indianapolis, Ind., Track Races, Speedway. |
| Sept. | | Chicago, Ill., Commercial Vehicle Test, Chicago Motor Club. |
| Oct. | 7-11 | Chicago, Ill., Reliability Run, Chicago Motor Club. |
| Oct. | 12 | Salem, N. H., Track Meet, Rockingham Park. |
| Nov. | 6 | Shreveport, La., Track Meet, Shreveport Automobile Club. |

### Foreign

| | | |
|---|---|---|
| June | 16-23 | Vienna, Austria, Reliability Tour, Austrian Automobile Club. |
| June | 25-26 | Dieppe, France, Grand Prix de France, Automobile Club de France. |




Map showing route to be followed in the Alpenfahrt, the annual tour of the Austrian Automobile Club

THE AUTOMOBILE

Vol. XXVI Thursday, June 13, 1912 No. 24

THE CLASS JOURNAL COMPANY
H. M. Swetland, President
C. R. McMillen, Vice-President
W. I. Ralph, Secretary E. M. Corey, Treasurer
231-241 West 39th Street, New York City

BRANCH OFFICES
Chicago—910 South Michigan Avenue Detroit—627 Ford Building
Boston—1035 Old South Building Cleveland—309 Park Building

EDITORIAL
David Beecroft, Directing Editor
George M. Schell James R. Doolittle
J. Edward Schipper Hans Weysz
D. McL. Lay L. V. Spencer

BUSINESS
C. R. McMillen, General Manager
N. H. Van Sicklen, Jr., Office Manager

ADVERTISING
W. I. Ralph, Manager
L. G. Vogel, New York C. H. Gurnett, Chicago
F. B. Barnett, Cleveland F. J. Robinson, Chicago
W. S. Young, Boston C. K. Brauns, Detroit

Cable Address ---------- Autoland, New York
Long Distance Telephone ---------- 2046 Bryant, New York

SUBSCRIPTION RATES
United States and Mexico ---------- One Year, $3.00
Other Countries in Postal Union, including Canada ---------- One Year, 5.00
To Subscribers—Do not send money by ordinary mail. Remit by Draft, Post-Office or Express Money Order, or Register your letter.

Entered at New York, N. Y., as second-class matter.
The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly), July, 1907.

## Wanted—Salesmen

GO into any city in the country, talk to nearly every automobile dealer and the question on every lip is, Where can I get good salesmen?

These are days of selling pleasure cars and trucks: The old regime of so-called salesmen who merely have to fill orders, has nearly ceased. The ranks are thinning; faces that were known a year ago are gone; new ones have taken their places; entire strangers are now talking points of car operation and economy. Ask the manager of the salesroom what company the new salesman was with before he secured him, and in scores of cases comes the answer: He was not in the automobile business before he came with me. In reply to the question as to why he was selected comes the invariable answer: He is a good salesman, he knows the principles of salesmanship and it will not take more than a week for him to know all of the details about the car and the rival machines with which he should be familiar. He is a salesman.

This is a new regime, and a long-wished-for one. Many have been the millstones in the dealer's selling force. He has been manacled with hosts of so-designated salesmen, but they have been but parasites, persons entirely ignorant of their business. One of the traveling representatives of a big car maker stated recently, after having made a trip of nearly all of its agencies, that the salesman was the weakest link in the chain. In over 70 per cent. of the cases the salesman did not know the elements of proper address to a customer when the latter entered the salesroom. After having opened the conversation with the prospect an equal ignorance of the psychology of presenting sales arguments was observed in the majority of cases. The operation of the buyer's brain was entirely overlooked. Particulars were presented before general facts; details of the car were taken up entirely too early; no effort was made to proceed from the known to the unknown and there was an entire lack of continuity in leading the buyer from one part of the car to another in order to give him that concept of the vehicle which it would be necessary for him to obtain before finally deciding to purchase.

Salesmanship is a science, just the same as medicine is a science, just the same as chemistry is a science, just the same as astronomy is a science. Salesmanship is as imperative as is quality and the product that has to be sold. This is particularly so at present. The last 5 years have proved admirably the value of a knowledge of salesmanship. In that time many concerns have closed up their plants, bankrupts. They have not closed because of poor engineering; their engineers have taken places in the biggest and most successful plants in the land. The engineering work was satisfactory, so was the production end; but the selling end was the weak link. It is just as important to know how to sell a commodity as it is to build it. It is questionable if there are not more engineers today than there are salesmen. Our automobiles are on the average better built than they are sold.

One of the greatest essentials of salesmanship is to be a student of human nature, to have that ability to quickly and accurately pick out the stumbling blocks in the minds of the buyers. It is utterly impossible for the salesman to make a sale unless he is standing on the same level with the buyer. The first big work is to find out where the buyer stands, to know his predominating phase of mental activity. If the buyer has some body scheme or idea in his mind, it is up to the salesman to discover this at the earliest moment. It is quite useless for the salesman to talk control or technical points when the buyer is thinking body conveniences, spring suspension or lighting system. Until the salesman knows what points are dominating the mind of the buyer his efforts are futile; in fact, they are worse than futile—they are actually antagonizing the buyer.

The first task is to discover what predominates in the buyer's mind. This can be obtained perhaps from a word dropped in conversation, perhaps from the first sentence that falls from the prospect's lips. The salesman must be mentally acute, he must keep every faculty on the alert, for every word, for every syllable or for every symptom that may present itself. The only course to a sale is through the natural avenue of the buyer's mind. You cannot go contrary to that, you will antagonize, and buyer and seller will get farther asunder instead of coming together.

It is this increased mental activity of the buyer that makes real salesmanship necessary today. Every man who buys a car today is more fastidious than were the buyers of several year ago. Nearly every buyer today starts out on the assumption that there are nearly a score of cars any one of which will give him all of the satisfaction that he needs, and he will eventually decide upon the

car he buys through some more or less minor points. This was well illustrated recently by a buyer who purchased solely on the ease of operation of the car. The ratio of bore to stroke was not a factor; whether there were three or five bearings in the crankshaft did not interest him. He was not much interested in the particular make of self-starter; with him it was ease of control. With another man it was ease of riding in the tonneau. He rarely drove himself, and he wanted every comfort when riding in the rear. With a third, more mechanically inclined, it was the accessibility of the magneto and the ease of adjustment of the carbureter. So it goes throughout the entire gamut of salesmanship, the argument that clinches the sale is the one that appeals to the buyer. The salesman must study his prospect; he must know whether he is interested in mechanics, easy riding, easy control, right or left-side steering, body colors or merely in speed. Once the salesman gets his feet on the same level with the buyer it is easy work, merely keeping every mental activity on the alert and guiding the buyer along the channels he prefers to exploit rather than trying to force him along avenues of examination in which he takes not the slightest interest.

Salesmanship is a mental study. The salesman must view it as such, must approach it as such, and must complete it as such.

# Milwaukee to Try Concrete

## Will Construct 4 1-2 Miles of Highway for Test Purposes—Wisconsin Farmer Fined for Placing Bumps in Road

MILWAUKEE, WIS., June 10—Concrete highways, such as are being constructed on a large scale in Wayne county, Mich., are to be given a thorough trial in Milwaukee county, Wis., as the result of a recent junket of the Milwaukee Common Council to Detroit. Contracts have already been awarded for the construction of 4 1-2 miles of concrete road, running from the south city limits at the end of Layton boulevard (Twenty-second avenue), Milwaukee, along the Kilbourn road, which is the Milwaukee terminus of the proposed Chicago-Milwaukee improved highway.

The decision to build a concrete highway on Kilbourn road is the result of the efforts of the Chicago-Milwaukee Good Roads Association, which is improving a main highway between Chicago and Milwaukee. The county thus stands a large part of the work and expense incident to the improvement of the highway, leaving the funds of the association to be used in dragging, grading and resurfacing the highway south of the concrete road, which ends at the Milwaukee county limits.

Contracts for constructing several other important stretches have been awarded by the Milwaukee county board. Macadam road contracts have also been awarded within the week for two stretches of 1 1-2 miles leading out of the city of South Milwaukee. Macadam road contracts were awarded at 35 cents per square yard.

### Placed Bumps in Road; Fined

KENOSHA, WIS., June 10—The Kenosha Automobile Club, organized in February with 100 charter members, and now having 200 members in a city of 32,000, is showing its mettle by bringing suits against farmers for placing speed traps in the forms of bumps across the main traveled highways. William Hollenbeck, a farmer, was brought into court on complaint of the club and found guilty of violating the state law making it a misdemeanor to place obstructions on the public highways. He was fined $10 and an additional $50 was added as costs because of damages to two motor cars which struck the bump and were disabled. Hollenbeck pleaded that he placed the bump in the road because motorists were killing his chickens. As the result of this case, all bumps built on the roads are disappearing.

MINNEAPOLIS, MINN., June 10—Tractor engines are being utilized in Winona county, Minn., to drag 12 miles of rough and uneven road with the result that a fine highway is being created. The tractor hauls two drags, each loaded with two men.

# Organizing Highway Systems

## Pennsylvania Road Officials Studying Road-Building Methods in Other States—Mail Wagons Must Not Block Traffic

HARRISBURG, PA., June 10—At a conference this week between State Highway Commissioner E. M. Bigelow and Chief Engineer Samuel D. Foster details of the organization of the new state highway system were discussed.

The state has now possession of something more than 7,000 miles of roads and the problem of maintenance is a serious one, owing to the limited amount of money on hand. The work will include dragging, ditching, grading, under-ditching and the removal of loose stones.

The assistant engineers have about eight counties each to look after, and under them are the superintendents, with one county each, as a rule, in which to direct the work of the repair gangs.

Highway Commissioner Bigelow and Chief Engineer Foster will make an inspection of the state highways in New Jersey, New York, Massachusetts and Connecticut this month. The tour will be made in an automobile. The officials will confer with the highway officers of the other commonwealths to obtain information for the organization of the maintenance forces of the department.

### Mail Wagons Must Not Block Road

MADISON, WIS., June 10—That a driver of a United States mail wagon has no more right to obstruct the highways than any other horse-drawn vehicle was the decision of the federal court commissioner here, in the case brought against O. G. Erickson, a Madison chauffeur. It appears that a rural mail carrier refused to allow the chauffeur to pass and he had to run on low speed for several miles, finally forcing his way by. A charge of obstructing the United States mails was brought, but ridiculed by the court commissioner. Several cases have been decided in Wisconsin against other horse-drawn vehicles which refused to permit the faster-moving vehicle to pass and heavy fines have been imposed under the state law prohibiting such obstruction.

BOSTON, MASS., June 10—The Metropolitan Park Commission of Massachusetts surprised the motorists of Boston and other nearby cities and towns last week by announcing that it had decided to throw open to motor cars the Soldiers' Field road that skirts the Charles River in the vicinity of the Harvard College stadium. There was no request or hearing asked by motorists, which made the decision all the more surprising. It is one of the best roads in the vicinity of Boston and will be largely used. The open time is from June 10 to December 1.

# Million for State Roads

## Massachusetts Legislature Passes Bill to Expend $200,000 Annually for Five Years on Boston Parkways

BOSTON, MASS., June 10—The legislature has passed and Governor Foss has signed a bill authorizing the Metropolitan Park Commission to spend $200,000 a year for the next 5 years, or $1,000,000 in all, on the parkways within the Metropolitan district around Boston. It provides for the following projects: for an up-to-date parkway or boulevard from Pleasant street, Woburn, to Pond street, Winchester, $50,000; for a parkway or boulevard around Lake Quinnapowitt, Wakefield, $50,000; for a parkway or boulevard from the junction of the Mystic Valley parkway and Main street to Mystic avenue, Medford, $75,000; for a boulevard or parkway from Hancock street, Quincy to Quincy Shore reservation, $100,000; for taking land around Lost Pond, Brookline, and around Hammond Pond, Newton and Brookline, $107,000; for acquiring land for a parkway from Boyden square, Dedham, to Stony Brook reservation, $10,000; for acquiring land for a parkway or boulevard from Winthrop Parkway, Revere to Winthrop Shore Reservation, Winthrop, $100,000; for a parkway or boulevard from Fresh Pond Parkway to Fresh Pond, Cambridge, $15,000; for a westerly drive in Middlesex Fells Reservation near Fellsmere Pond, Malden, $20,000; for acquiring land for a parkway or boulevard from the crossing of Columbia road, to near the Neponset bridge, Boston, and from near Neponset bridge to Quincy Shore reservation, Atlantic, $475,000; for improvements on land now held by the Metropolitan park commission, Dorchester Lower Mills, $4,000.

### Wants Brick Instead of Macadam

BRADFORD, PA., June 12—The first convention of the McKean County Good Roads Association was held here Thursday with a large attendance from out of town. R. J. Hoffman presided. The first speaker, C. P. Mayer, of Pittsburgh, advocated the use of brick pavement instead of water-bound macadam, which is now used in this section. Jesse Taylor, of Jamestown, O., urged the voters to call upon their congressman to vote for federal aid in good road building. He pointed out the advantage of connecting the farming districts with the cities. He declared that good roads in Pennsylvania would assist the movement in Ohio and aid also in New York state, and that a system of good roads throughout any section would assist in the betterment of roads throughout the country. He compared the roads of this country with those of Europe, and stated that many Americans ship their cars to Europe during the summer months so that they might enjoy the fine roads in that country. In the evening illustrated addresses were given by L. E. Boynton, Washington, D. C.; William P. Blair, Cleveland, O. The McKean County Good Roads Association elected these officers for the year: President, L. E. Mallory, Sr.; treasurer, S. G. Coffin; secretary, E. F. Knight; vice-president, R. B. Hapgood.

MILWAUKEE, WIS., June 10—The new municipal administration has renewed efforts to complete the lake shore drive in Milwaukee, which is to eventually equal the Sheridan road in Chicago. The manufacturers of the city have promised to dump all refuse, ashes and cinders along the lake front instead of in a haphazard manner, and the city is now obtaining riparian rights along the shore of Lake Michigan to the northernmost point of the city. The Chicago & Northwestern Road has been asked to build a spur track to various points along the harbor shore to facilitate the dumping of refuse from the factories. Several links in the drive are already completed.

# Montreal to Vancouver

## Project Afoot to Build Canadian Transcontinental Highway—Men Want Lien on Road for Wages

MONTREAL, June 10—An automobile road from Montreal to Vancouver is the project which has now been mooted. The idea comes from the West, and has grown out of the project for the building, from Calgary into the Windermere district, of the most wonderful automobile highway in the world.

R. Randolph Bruce, of Windermere, B. C., who is now in Montreal, says excellent progress is being made with the road into Windermere, which is being built by contributions from the Canadian Pacific Railway, the British Columbia government, and the federal government. This road will ultimately be carried south to the vicinity of the Crow's Nest Pass line of the Canadian Pacific Railway and will return to Calgary *via* Lethbridge, making a wonderful scenic highway that crosses the summit of the Rockies twice, and gives some of the wildest and most beautiful mountain scenery to be obtained anywhere.

So enthusiastic have automobilists become over the portion from Calgary to Banff and beyond that has already been built, that a movement is now to be set on foot to get the provincial and federal governments to co-operate with the local authorities to extend the road to Vancouver in one direction, and to Montreal in the other. It is held that this would prove a wonderful advertisement for the Dominion, and would bring to this country a constant stream of the world's wealthiest tourists.

### Lien on Road for Unpaid Wages

MONTREAL, June 10—That he should hold part of the public highway to guarantee his unpaid wages is the unusual demand made by the plaintiff in the case of Dagenais *vs.* Leedham. The defendant some time ago undertook to do road-making for the town of Beaconsfield. It is alleged that Leedham failed to pay three of the men, with the result that the latter wish to take out a lien on the road itself.

The town of Beaconsfield claims that a public highway, devoted to the common use of the citizens, cannot be considered as a construction as viewed in the article of the code, guaranteeing workman's claims.

### Co-operate to Punish Law-Breakers

HARRISBURG, PA., June 10—Pennsylvania's automobile law does not permit the arrest of Keystone State automobile owners who may violate the speed limit or commit other offenses in New Jersey and other states and then escape to their home state, but the officials of the Pennsylvania highway department are willing to do all in their power to help catch the lawbreakers. This position was taken this week by Thomas E. Boyd, registrar of the automobile division of the department, who received a letter from the automobile registration authorities of New Jersey asking that holders of Pennsylvania licenses be prosecuted or licenses revoked when it was found that they were breaking the laws in that state. The Jersey official desired reciprocity in arrests as well as in privilege to run in other states.

Mr. Boyd stated that the laws in Pennsylvania do not permit arrests, but he would be glad to co-operate by sending notice of infraction of laws to persons who may be reported.

AUTOMOBILE carnival week will be observed from July 14 to 20 in New York in connection with the summer festivities planned by the Hotel and Business Men's League. The tentative program includes an entertainment for visitors at the Automobile Club of America; flower pageant; hill-climb; secret time run, etc. The carnival will close with a parade.

# Richmond After Speeders

## Police Believe That Present Laws are Too Lenient and Propose Drastic Measures to Cure Evil

RICHMOND, VA., June 10—Fines of $50 for exceeding the speed limit to check those who monopolize the streets of the city, and Justice Crutchfield, of the police court, will raise the fine to $100, making the second and third offense jailable.

The Board of Police Commissioners has just passed the following resolutions:

"*Whereas*, in the opinion of the Board of Police Commissioners of the city of Richmond, the present laws of the State, and the ordinances of the city, are inadequate to prevent, or even check the constantly growing menace to public safety, arising from the fast and criminally reckless operation of motor-propelled vehicles in the city, because of the failure of said laws and ordinances to provide:

"First—An examination by competent experts of every person desiring to operate such vehicles as to such applicant's ability to operate such vehicle with safety to the public, and a license to operate conditional upon such applicant's successful passing such examination, together with a certificate of three or more responsible citizens endorsing such applicant's mental, moral and physical fitness to operate such vehicle.

"Second—A compulsory jail sentence to be imposed upon a second or third conviction of violation of the anti-speed laws and ordinances, or upon first conviction, if the offense be of an aggravated nature.

"Third—Compulsory suspension, or revocation of the license, to operate such vehicle upon conviction of violating said laws or ordinances, in proportion to the gravity or frequency of such violations.

"Fourth—Authorization to police officers to arrest for such offense, instead of the mere right and duty to report.

"Fifth—That the state license tag attached to any such vehicle, the driver of which may be violating such laws or ordinances, shall be prima facie evidence that the driver of such vehicle is the person in whose name the vehicle so numbered is registered in the office of the Secretary of the Commonwealth.

"*Therefore, Be it resolved*, That a committee of three, to be named by the president of the board, be appointed for the purpose of preparing, with the aid of the city attorney, whose assistance is hereby requested, such ordinances and amendments to ordinances, as will carry into effect the provisions above suggested, and the said committee is authorized and directed to present such ordinances and amendments, when so prepared, before the proper committee or committees of the Council, and to endeavor earnestly to secure their passage."

The Richmond Automobile Club has notified the city officials that they will co-operate in every way with the officers of the law to enforce all laws, and will lend every assistance possible in ferreting out the law-breakers.

State laws passed by the legislature last March make it a misdemeanor to purloin an automobile and take a joy ride.

## Motor vs. Horse Fire Apparatus

ALBANY, N. Y., June 10—"Automobile Fire Apparatus, the Cost of Maintainance and Its Usefulness as Compared to That of Horse-Drawn Apparatus" will be the subject of addresses to be delivered by Fire Chiefs James Mulcahy, Yonkers; E. J. Shadwick, Saratoga, and John Kenlon, New York City, at the ninth annual meeting of the New York State Association of Fire Chiefs to be held at Albany, opening on Thursday, June 20. The following automobile companies will have exhibits at the coming convention: White Motor Car Company, Albany; American Locomotive Company, Firestone Tire & Rubber Company, Woodhouse Manufacturing Company, Combination Ladder Company, American-LaFrance Fire Engine Company, Elmira; Seagrave Company, Columbus, O.; Knox Automobile Company, Springfield, Mass.; Nott Fire Engine Company, Minneapolis, Minn, and the Couple Gear Company, New York City.

PHILADELPHIA, June 10—The itinerary of the automobile truck parade to be conducted jointly by the Philadelphia *Inquirer* and the Philadelphia Automobile Trade Association on Thursday, June 20, has been mapped out. Preliminary to the start, the parade will form in five divisions and proceed over a long route through business and residence sections to Belmont and Parkside avenues, where the procession in the city proper ends and those trucks required for duty will drop out. Others will continue on to the Belmont Driving Park, Narberth.

# Think Penalty Too Severe

## Commissioners of District of Columbia Ask Congress to Amend Bill Dealing Harshly with Joy Riders

WASHINGTON, D. C., June 8—Regarding the penalty as too severe, commissioners have recommended to Congress that the bill introduced by Congressman Johnson, of Kentucky, to prohibit the borrowing of motor cars for the purpose of "joy riding" be amended so as to provide for either fine or imprisonment.

The penalty provided by the bill in its present form is imprisonment for not less than 1 or more than 10 years. The commissioners suggest that the offense be made punishable by a fine not exceeding $1,000 or imprisonment not exceeding 10 years, or both. The suggestion, if adopted, would give the court latitude to punish the offense.

The district commissioners have reported unfavorably on the bill of Congressman Cary of Wisconsin, to license chauffeurs, conductors and motormen. The commissioners say the present police regulations require an examination of chauffeurs by a motor board; that the board has been recognized by Congress in appropriation laws; that no court has decided that the commissioners are without power to regulate this employment, and that, therefore, there seems to be no present necessity for legislation on the subject.

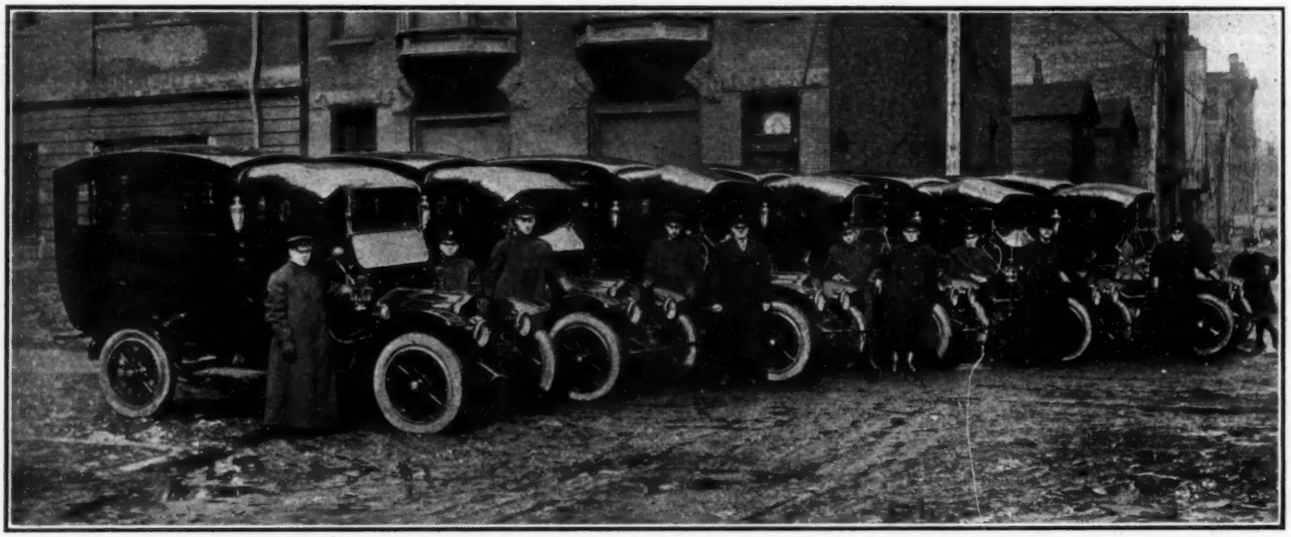
## Must Separate Garage and Dwelling

BOSTON, MASS., June 10—The Massachusetts State Police have started to enforce the law passed recently that motor vehicles may not be kept under buildings where people use the upper apartments for gatherings or sleeping purposes. The law was passed to prevent a single garage man from using a wooden structure for such purposes where some families slept above the machines and because the local police and fire officials would not close the place up. Now, however, it hits many properties. One of the first to feel the effects was the Armory Athletic Club, of Boston, where boxing bouts were conducted which were sometimes attended by 3,000 or more people and under which there was a large garage. Some of the dealers who had salesrooms in remodeled apartment houses had to change their plans so as not to have any cars with gasoline in them on their premises. In the suburbs some of the newer apartment houses were built so that there were places for the motor cars of the occupants in the basement and for which high rents were asked because of this feature. The state police have turned their attention to them and ordered the cars out or the apartments vacated. Governor Foss has just had plans drawn for big apartments in Brookline with a garage attachment, and in order to comply with the law he had to purchase an extra big slice of land on which to put the garage.

## Must Officials Pay for City Cars?

MILWAUKEE, WIS., June 10—The question of whether or not the municipality is legally able to purchase motor cars for the use of city officials has been raised at Milwaukee, following the announcement that six $1,000 runabouts would be purchased for the use of assistant fire chiefs. The objection is based on an ordinance which creates the position of commissioner of public works. The ordinance requires the commissioner to provide and operate his own car. It is believed to follow that all other officials must own and operate their own cars. The administration has just authorized the purchase of a car for the use of the superintendent of street cleaning, who is under the authority of the commissioner of public works, and this action has resulted in the objection.

# BULLETIN News of the Week Condensed



Portion of the fleet of White delivery cars in the service of the Hub, a big Chicago department store

**MORE Fifth Avenue Busses**—The Fifth Avenue Bus Company recently placed an order with E. Lascaris, American agent for the De Dion-Bouton Automobile Company, for twenty-five busses. These busses will seat forty-two persons, twenty inside and twenty-two outside.

**Van Deusen With Abbott-Detroit**—Walter H. Van Deusen has been appointed sales manager of the Abbott-Detroit Company, Detroit, Mich.

**Dunkards May Use Cars**—According to action taken by the Dunkard Church in a conference held near Englewood, O., recently, members can use automobiles for pleasure. The question precipitated considerable discussion when it came before the conference and there was much opposition to the ruling.

**Ingersoll Joins Baker Electric**—Jerome Ingersoll has joined the Baker Electric forces and will have charge of the Detroit, Mich., store, as well as the distribution system of the company for Michigan.

**Chidester Succeeds Heffinger**—R. C. Chidester has been appointed manger of the Milwaukee, Wis., branch of the Packard Motor Car Company, of Chicago, to succeed O. G. Heffinger, who is transferred to Chicago.

**Harris Places Tire on Market**—B. B. Harris, Columbus, O., agent for the Republic Tire Company, which has a branch at 215 North Fourth street, has placed on the market a new rubber tire for electric automobiles.

**Dallas Overland Erects Building**—The Overland Automobile Company, of Dallas, Tex., is erecting a three-story building with basement at the corner of Commerce and Preston streets, which will be called the Overland building.

**Chandler Heads O'Neil Tire**—James Waters, who came to Boston, Mass., from Cleveland, O., to open a branch for the O'Neil Tire Protector Company, has returned after having placed H. T. Chandler in charge as branch manager.

**Ford Agency Changes Hands**—Dennis White has sold out the Newark, O., agency for the Ford line to the Ford Motor Sales Company, which is composed of A. P. Hess and T. J. Priest. A location on South Fifth street has been secured for the salesroom and garage.

**After Automobile Thieves and Joy-Riders**—The Chicago Automobile Trade Association, the Chicago Motor Club and the Chicago Automobile Club have joined forces for the purpose of stopping the stealing of automobiles and the constant joy-riding that has been going on for the past few years.

**Invents Gasoline Engine**—C. E. Ross, proprietor of the Ross Garage at Walnut and Wall streets, Columbus, O., is the inventor of a new gasoline engine, which, he claims, is an improvement over the present types of motor. He will place the new engine on a number of cars at Dayton, O., for a thorough test.

**Schmidt Opens Chain Agency**—C. D. Schmidt, New York City, who represents C. A. Mezger, Inc., has opened an office at 276 Canal street, where he will represent the Baldwin Chain Manufacturing Company, and will make a specialty of carrying stock for replacement of sprockets for all standard commercial cars.

**Rockwell Advertising Manager U. S. M.**—Berry Rockwell has been appointed advertising manager of the United States Motor Company, New York City, to succeed Gridley Adams. Mr. Rockwell will have general supervision of all dvertising of the Maxwell, Columbia, Stoddard-Dayton, Brush and Courier motor cars and Sampson motor trucks.

**Army Test for Trucks**—On orders from the War Department, the Four Wheel Drive Automobile Company, Clintonville, Wis., recently sent two of its motor trucks, a 1 1-2 and a 2-ton, to Dubuque, Ia., under their own power. The trucks are to be given further tests in the military maneuvers to be held this month in which four regiments of infantry and cavalry from as many military posts in the country will participate.

**Supply House Changes Hands**—J. C. Neill & Son have purchased the Auto Supply House, Washington, Pa., and have taken possession.

**Cleveland Branch of Republic**—The Republic Rubber Company, Youngstown, O., has opened a branch in Cleveland, O. Benjamin C. Swinehart is in charge.

**Pettit Advertising Manager Studebaker**—W. S. Pettit has been appointed advertising manager of the automobile division of the Studebaker Corporation, Detroit, Mich.

**New Jersey Automobile Registrations**—There were registered in New Jersey, up to June 1, 39,790 machines, as against 25,878 for the corresponding period last year.

**Chevrolet-Detroit in Buffalo**—The Chevrolet-Detroit factory has opened a branch office in the Burrell building, Buffalo, N. Y. J. F. Rath is Buffalo sales manager for the Chevrolet Six and Little car.

**Marion Gets Brilliant Engineer**—Matthew B. Morgan is the new chief engineer of the Marion Motor Car Company, Indianapolis, Ind. Mr. Morgan has had a wide and varied experience in the automobile field.

**Daniels Becomes Advertising Manager**—Bruce Daniels has resigned as automobile editor of the *Indianapolis Star* to become advertising manager for the Motor Car Manufacturing Company, Indianapolis, Ind.

**Sutherland to Succeed Willis**—R. L. Sutherland will become manager of the Indianapolis, Ind., sales branch of the Studebaker Corporation when Frank B. Willis retires July 1 to become affiliated with the Metzger Motor Car Company.

**Wilson Elected Counselor**—Lucius E. Wilson, general manager of the Warren Motor Car Company, has been elected counselor to represent the Detroit Board of Commerce in the membership of the Chamber of Commerce of the United States.

**After Municipal Joy-Riders**—The officials of the city of Indianapolis, Ind., have taken steps to prevent the use of municipal automobiles for joy-riding. Orders have been given to paint the words "City of Indianapolis" on every car owned by the city.

**Harold Company's $100,000 Deal**—The Harold Motor Company, New York, distributor of Pierce-Arrow cars, has purchased from Mrs. Annie S. Anable a plot 200 by 300 on the north side of Freeman street, between Fifth and Sixth avenues, Long Island City.

**Orphans Have Outing in Buffalo**—Three thousand orphans had their annual outing last Thursday in Buffalo, N. Y. They were taken around the city in 275 automobiles, including sixteen 2-ton motor trucks. At the Carnival Court all amusements were thrown open to the youngsters.

**Automobile Association Aids Sick**—The automobile association of Holland, Mich., has offered to give practical aid to the sick. A resolution has been passed by the association offering the services of members and their machines to the poor and ill for rides about the surrounding country.

**Garford Branch in Brooklyn**—The R. & L. Company, Eastern agents of the Garford Company, has decided to open a branch house in Brooklyn, N. Y. A lease has been obtained of the two large stores at the corner of Bedford avenue and Fulton street. Carpenters and decorators are now at work making the alterations.

**Detroit to Have Big Clubhouse**—Within a year Detroit will have one of the finest automobile clubhouses in the United States, according to action taken by the Wolverine Automobile Club at a meeting held last week. The building will be eight stories high with a roof garden, and will be devoted almost entirely to the purposes of the club.

**Barrier Joins Kline Corporation**—B. J. Barrier, formerly manager of the Memphis, Tenn., branch of the Schacht Motor Car Company, has joined the Kline Motor Car Corporation, of York, Pa., and Richmond, Va., in the capacity of Southern sales manager. He will have charge of the sales of this company in Alabama, Mississippi, Louisiana, Oklahoma, Texas and Tennessee.

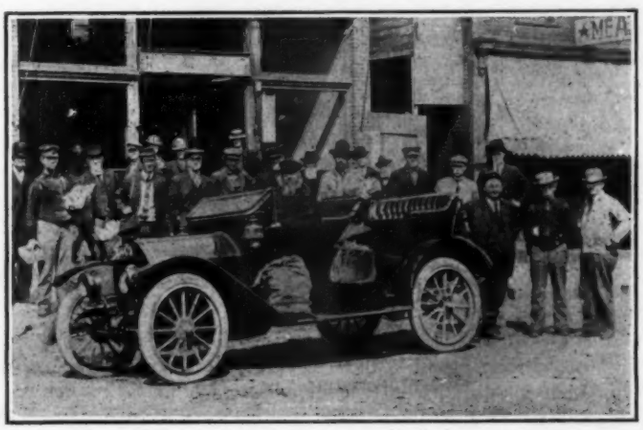
**To Hold Sociability Run**—A sociability run will be conducted on June 15 by the Saturday Automobile Edition of the *Baltimore News* under the auspices of the Automobile Club of Maryland and the Baltimore Motor Car Dealers' Association. The route will be from Baltimore to Annapolis and the start will be at 12:30 o'clock. Any car that fails to cross the checking line at Annapolis at 5 o'clock will be disqualified.

**Indianapolis Speedway's New Grandstand**—It is planned by the Indianapolis Motor Speedway Company, Indianapolis, Ind., to build a new steel grandstand before the proposed fall meet, which, according to present plans, will be held August 31 and Labor Day. The new stand will take the place of grand-stand A and will be of fireproof construction and equipped with chairs. The new stand will cost in the neighborhood of $100,000.

**Makes His Car Pay**—Many rural mail carriers throughout the country are finding the automobile of great service in their work, but William H. Berry, the veteran who has R. F. D. route 3 out of Shelby, Mich., is making his car pay in another way. Although 70 years of age, Carrier Berry whisks over his route in 2 hours, whereas it formerly required 8 or 10 hours. Thus, he is able to cover his route in the morning and then to use his car for livery work in the afternoon.

**Boston After Dealers**—The city authorities of Boston, Mass., have started a crusade against the automobile dealers to prevent them continuing the practice of allowing sand and oil to flow into the catch basins and sewers. Within a few days suits were entered against ten of the agents and branch managers and they were summoned to court under an ordinance passed some time ago somewhat similar to the one in force in New York. The dealers quickly made arrangements to comply with the law by putting in catch basins which cost them $250.

**Ohio Registration Grows Rapidly**—According to the report of State Registrar of Automobiles J. A. Shearer there are now more automobiles in use in the state of Ohio than were registered during the whole of the year 1911. Up to June 6 the number of cars registered was 50,132, as compared with 45,788 during the year 1911. The report for the month of May shows that 6,400 cars were registered and the surplus of the receipts above the expenses amounted to $27,233.86. This amount will be turned over to the highway commissioner for road improvement. For the first 5 months of the year the net receipts, including interest, were $226,239.58.



Mail carrier Berry, of Shelby, Mich., is up-to-date

White truck equipped with wireless apparatus in New York City's Decoration Day parade

**No Tolls at Sharpsburg**—The spans over the Allegheny River at Sharpsburg, Pa., have been purchased by the county and passage over the bridge is now free. Formerly toll was collected on the bridge.

**Opens Cedar Rapids Building**—The Barton-Ford Car Company, Cedar Rapids, Ia., has just taken possession of the new building at 616 Second avenue. The company handles the Velie, Briggs-Detroiter and the King cars.

**Lippincott Closes Office**—Automobile Commissioner Job H. Lippincott has abolished the chief automobile inspector's office in Jersey City and has removed the headquarters to the State House in Trenton, N. J. He calculates that this and other changes made by him in the work of the department will save the state about $15,000 a year.

**Toledo Tire Firm Moves**—The Automobile Tire & Repair Company, formerly located on Ontario street, Toledo, O., has moved into the new Thatcher building on Madison avenue, and the firm name has been changed to the Peerless Rubber & Tire Company. Elmer Allmeroth is manager and J. R. Humphrey, of Cleveland, will have charge of city sales.

**Jones With Muncie Gear Works**—Frank H. Jones has severed his connections with the Warner Gear Company to become interested in and associated with the Muncie Gear Works, Muncie, Ind., as general superintendent and mechanical engineer, where he will add to the present production a full line of sliding gear transmissions, control levers and steering devices.

**Reynolds Advertising Manager**—Wilbur F. Reynolds, sales manager of the Lippard-Stewart Motor Car Company, Buffalo, N. Y., has assumed the duties of advertising manager in connection with the supervision of the sales department. Mr. Reynolds now has the title of sales and advertising manager and will have charge of the marketing of the Lippard-Stewart cars.

**Two New Automobile Lines**—Two new automobile lines have been started between Baltimore, Md., and out-of-the-way suburban places heretofore covered by stage. Walter F. O'Dell has established a line which makes daily trips between Baltimore and North Branch, Baltimore county, a distance of 15 miles, while another line which makes weekly trips has been opened between Baltimore and Libert.

**Advertising Agents Consolidate**—The business of the P. B. Bromfield Advertising Agency, Fifth Avenue building, and of the Wagner-Field Company, 1780 Broadway, New York City, have been consolidated under the name of Bromfield & Field, Inc., 1780 Broadway, New York. Mr. F. J. Wagner will retire from active participation in the business, but will continue as a stockholder in the new corporation.

**St. Louis' Orphan's Day Outing**—The annual Orphan's Day Outing of the Automobile Club of St. Louis, Mo., was held Wednesday, June 12. Over 1,600 orphans had rides in machines donated by St. Louisans. Each child was given a flag, a button and a horn when put into the car. A trip around the park was made and then the cars went into the country for a couple of hours. Each machine made three or four trips loaded with little ones.

**Potatoes Buy Farmers Cars**—As the result of the harvesting of wonderful potato crops in the famous tuber belt of Wisconsin, of which Stevens Point is the center, nearly every farmer in Portage county has purchased an automobile this year. In one small township alone, that of Almond, thirty-four potato growers have purchased cars since March 15 and it is expected that by the middle of summer practically every farmer will be riding around in his own machine.

**Uses Truck in Paving Streets**—The Board of Works of Detroit, Mich., has been making practical use of a big 5-ton G. M. C. truck, which it recently bought for the use of the asphalt-laying department. The asphalt is now loaded into the truck at the city asphalt plant, piping hot, blanketed with heavy canvas and rushed to the scene of paving operations. There the blanket is removed and the truck dumps the hot asphalt on the spot where it is wanted, thus doing away with a second heating of the material and saving a considerable amount of time and expense.

## Automobile Incorporations

### AUTOMOBILES AND PARTS

AKRON, O.—Ideal Commercial Car Company; capital, $200,000; to manufacture pleasure and commercial automobiles. Incorporators: H. C. Gates, A. J. Dettoff, Maynard Stump.

BALTIMORE, MD.—Detroiter-Baltimore Company; capital, $50,000; to manufacture automobiles and motors. Incorporators: R. H. Croxton, C. A. Jarman.

BROOKLYN, N. Y.—Drake Railway Automobile Company; capital, $250,000; to engage in the passenger transportation business. Incorporators: F. E. Drake, A. Bauer, H. B. Tibbetts.

BUFFALO, N. Y.—Brooks Motor Car Company; capital, $100,000; to manufacture automobiles. Incorporators: Herman G. Rechsteiner, George B. North, B. O. Kerr.

BUFFALO, N. Y.—Manufacturers Service Company; capital, $10,000; to make special machinery suited for the manufacture of automobiles. Incorporators: Walter J. Minehan, Herbert W. Huntington, H. Barton Perry.

CHARLESTON, S. C.—C. F. Franke & Company; capital, $250,000; to deal in automobiles, wagons, carriages and other vehicles; also supplies for same. Incorporators: Fmil H. Jahnz and others.

CHARLESTON, S. C.—Robinson Automobile Company; capital, $20,000; to deal in automobiles. Incorporators: J. T. Robinson, B. F. Robinson, Walter B. Wilbur, C. B. Fuiet.

DETROIT, MICH.—Jolls Motor Truck Company; capital, $20,000; to manufacture freight automobiles. Incorporators: Leroy E. Jolls, George Hornberger, Sidney L. Harry.

HAMILTON, O.—Wyoland Automobile Company; capital, $10,000; to sell and rent automobiles. Incorporators: Rolla Shickner, George H. Eversman, William Fetzer, P. F. Davidson, C. J. Shears.

INDIANAPOLIS, IND.—Nesom Motors Company; capital, $200,000; to manufacture automobile motors and other parts. Incorporators: C. T. Nesom, F. B. Brown, S. Sagalowsky.

KITTERY, ME.—V. C. Motor Truck Company; capital, $100,000; to manufacture automobile trucks. Incorporators: C. E. Smothers, William E. Sisk and others.

NEW YORK CITY.—Knickerbocker Commercial Vehicle Company; capital, $300,000; to manufacture freight automobiles. Incorporators: E. A. Dillenbeck, J. B. Williams, E. A. Smith.

NEW YORK CITY.—Universal Car Company; capital, $3,000,000; to manufacture commercial automobiles. Incorporators: E. E. McWhiney, W. J. Maloney, H. E. Latter.

SAN MARCOS, TEXAS.—San Marcos Auto Company; capital, $2,000; to engage in the automobile business. Incorporators: Frank Bradley, C. L. Hopkins, J. R. De Steiger.

TORONTO, ONT.—Baker Motor Vehicle Company; capital, $200,000; to manufacture electric automobiles. Incorporators, L. H. Walker, W. H. C. Burnett and others.

WILMINGTON, DEL.—Amplex Motor Car Company; capital, $1,000,000; to manufacture automobiles, parts and accessories.

### GARAGES AND ACCESSORIES

BROOKLYN, N. Y.—Non-Destructible Tire Protector Company; capital, $25,000; to manufacture a tire tread. Incorporators: William Weiner, Herman Seufert.

BUFFALO, N. Y.—Electric City Specialty Company; capital, $25,000; to

**Targa Florio Winners Bosch Equipped**—The winner and the four cars to follow in the Targa Florio race were all Bosch-equipped.

**Niagara Falls' Evening Parade**—An evening parade of automobiles, many of which will be entered from surrounding cities, will be held the last week in June.

**St. Louis Firm's New Home**—The Missouri Motor Car Company, of St. Louis, will soon occupy a handsome new home. The new building is on Locust street, the new automobile row of St. Louis.

**Redden Joins Everitt**—C. F. Redden, manager of the New York automobile branch of the Studebaker Corporation, has resigned his position to accept the management of the New York and New England sales of the Everitt car.

**Spoerer Company to Sell Bosch**—The agency for the Bosch magneto for the entire west of Maryland has been placed with Carl Spoerer Sons Company, Baltimore, Md., maker of the Spoerer car.

**Cole Men Meet at Luncheon**—W. L. Colt and Harry Stratton were hosts at an affair in honor of a visit of J. J. Cole, president, and C. P. Henderson, sales manager, of the Cole Motor Company, Indianapolis, Ind.

**Timken Forces Hold Conference**—The sales and advertising forces of the Timken Roller Bearing Company and the Timken-Detroit Axle Company met at the Detroit offices recently for their third quarterly conference.

**An Automobile Court**—Chicago has established a special court for dealing with offenses against the automobile laws and ordinances. All speeders and all drivers whose machines are not properly equipped with numbers and lights will be brought before this special tribunal.

## Automobile Incorporations

manufacture automobile accessories. Incorporators: Joseph E. Stark, John J. H. Baer, Ida E. Stark.

DETROIT, MICH.—Delphie Specialty Manufacturing Company; capital, $20,000; to manufacture automobile accessories, equipment and supplies.

KINSTON, N. C.—Kinston Garage; capital, $1,000; to conduct a garage and supply business. Incorporators: William Hayes, Lloyd M. La Roque, H. C. Hines.

GRAND RAPIDS, MICH.—Page Auto Hoist and Specialty Company; capital, $50,000; to manufacture automobile hoists and other specialties. Incorporators: Addie A. Walther, J. W. Vanderberg, George H. Parker, Anton Reim.

HONEY GROVE, TEXAS.—Honey Grove Automobile Club. Incorporators: L. C. Hill, T. B. Erwin, L. W. Trout.

HUNTINGTON, N. Y.—Huntington Motor Trucking Company; capital, $10,000; to conduct a business of renting freight automobiles and make deliveries. Incorporators: James B. F. Thomson, Samuel Riddell, Ralph A. Lewis.

KENOSHA, WIS.—Motor Transportation Company; capital, $25,000; to conduct an automobile line for the transportation of passengers and goods. Incorporators: Richard H. Welles, Peter Fischer, Jr., Albert Tunck.

JERSEY CITY, N. J.—Liberty Rubber Company; capital, $50,000; to manufacture tires, rubber goods, etc. Incorporators: B. S. Mantz, L. H. Gunther, J. R. Turner.

NASHVILLE, TENN.—Paris Auto Transfer Company; capital, $2,500; to conduct an automobile transportation business. Incorporators: F. L. Hensler, M. H. Ghelston, F. P. Johnson, J. N. Cooper, J. O. Shackleford.

NEW YORK CITY.—Hexolene Lubricating Company; capital, $6,250; to manufacture lubricants. Incorporators: Fred Lesser, Herman Ehrenthal, Herman Bloch.

NEW YORK CITY.—Robert Stock Auto Spring Wheel Company; capital, $300,000; to manufacture spring wheels for automobiles. Incorporators: R. Stock, J. F. Bokleman, E. Bokleman.

PATERSON, N. J.—Automobile Repair Company; capital, $25,000; to conduct an automobile supply and repair business. Incorporators: J. A. S. Hand, E. J. Dunn, C. P. Douglass.

RACINE, WIS.—Foster-Lockwood Oil Company; to manufacture and distribute oils and greases. Incorporators: J. E. Lockwood, J. R. Foster.

SKANEATELES, N. Y.—Shaneateles Garage Company; capital, $6,000; to conduct a garage and repair shop. Incorporators: George D. Guddeback, Edward J. Stott, Florence K. Stott.

TOLEDO, O.—Piano and Heavy Box Truck Manufacturing Company; capital, $20,000; to manufacture automobile jacks, self-lifting tire rests, etc. Incorporators: A. T. Raynor, W. F. Runkle, Henry Hoppenberg, James Long, E. M. Hoppenberg.

### CHANGES OF CAPITAL

AKRON, O.—Goodyear Tire and Rubber Company; capital increased from $6,000,000 to $15,000,000.

CLEVELAND, O.—Western Motor Truck Company; capital decreased from $200,000 to $15,000.

DETROIT, MICH.—Barr Manufacturing Company; capital increased from $40,000 to $50,000.

PLANO, ILL.—Mogul Motor Truck Company; capital increased from $125,000 to $500.000.

**Boston's Electric Club Meeting**—The meeting of the Electric Vehicle Club, of Boston, Mass., for the 1912 season was held recently at the New England Kennel Club, Braintree, Mass. More than fifty members attended and representatives from all the electric vehicles handled in Boston were present.

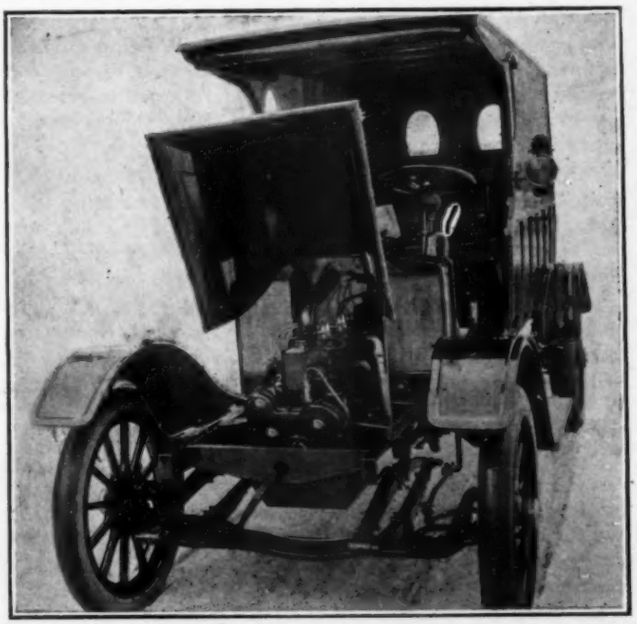
**Gives Joy to Motorists**—An order was issued recently by Police Commissioner Waldo to the various precincts in Brooklyn, N. Y., announcing that Ocean Parkway, from Twenty-second avenue to King's Highway, which heretofore had been restricted to horse-drawn vehicles, is now open to automobile traffic.

**New Quarters for Canadian Branch**—The Winnipeg, Man., branch of the H. W. Johns-Manville Company, owing to its increasing business in asbestos, magnesia and electrical supplies, has found it necessary to move into new quarters at 92 Arthur street, Winnipeg. A much larger and more complete stock of goods will be carried than heretofore, and a larger force will be employed.

**Horn Ordinance Modified**—The ordinance of Philadelphia prohibiting the use of all horns on automobiles except those of the bulb type has been modified by an order issued by Director of Public Safety Porter permitting the use of any signal device providing it has only a single note which is not prolonged. The order is the result of a protest lodged by horn manufacturers against enforcement of the ordinance.

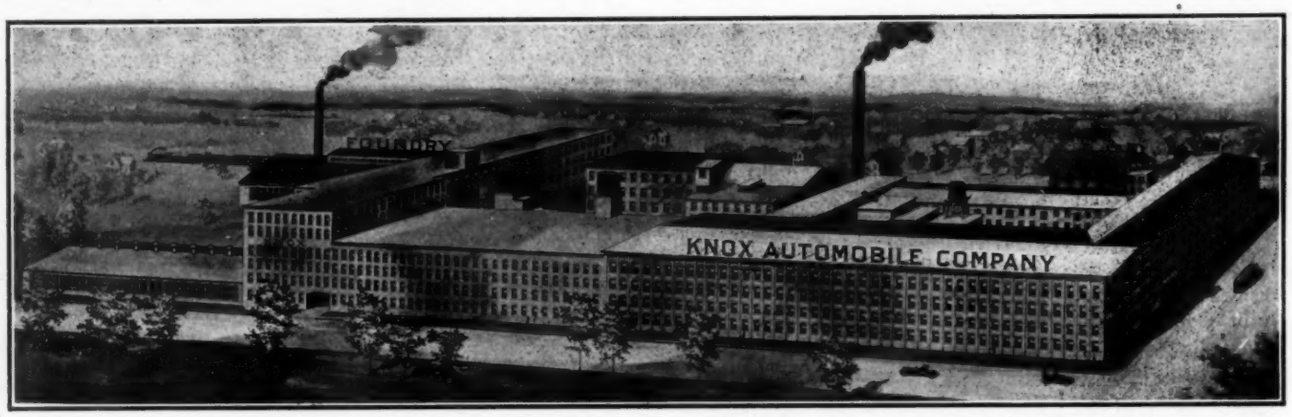
**Overland Men's Fine Vacation**—The Willys-Overland Automobile Company, of Toledo, O., is giving the fifty boys and men from the employees of the various departments of the big plant who comprise the famous factory band a fine vacation this summer. Leaving Toledo June 12 the entire band will start on a month's vacation trip, taking them through all the Western States and to twenty-four of the principal cities of that territory.

**Lippard-Stewart Motor Accessible**—A feature of the Lippard-Stewart delivery car, made by the Lippard-Stewart Motor Company, Buffalo, N. Y., is the ease and convenience with which the motor can be reached. The hood is so attached that when it is raised it completely exposes the entire motor from both sides and the front. The hood is held up by a small rod. This arrangement enables the driver or mechanic to get at any part of the motor.



The motor of the Lippard-Stewart truck is easily accessible and removable

# Factory Miscellany




Bird's-eye view of the immense plant of the Knox Automobile Company at Springfield, Mass. The floor-space totals 500,000 square feet

**HENDERSON Leases Factory**—The Henderson Motor Car Company, Indianapolis, Ind., has leased the factory of the National Casket Company at Northwest and Fourteenth streets. The Henderson company had been using this factory for some time, holding an option on the lease. The building is four stories in height, 212 feet long and 106 feet wide, and has a ground area of 5 acres in addition to the factory floor-space.

**Building at Jamaica Plain**—The Randall-Faichney Company, maker of the Jericho horn and other automobile accessories, is erecting a new factory at Jamaica Plain, Mass.

**Hartford Adds to Plant**—The Hartford Suspension Company, Jersey City, N. J., manufacturer of Truffault-Hartford shock-absorbers, has had plans prepared for a building to be 75 by 127 feet and six stories in height. The contract has been awarded.

**Buys New Factory**—The Lewis Electric Welding & Manufacturing Company, Toledo, O., has purchased the plant of the Toledo Stove Works and will spend $10,000 in remodeling it. The company makes, among other things, various automobile and motor parts.

**Ford Plant for St. Louis**—The Ford Motor Company, Detroit, Mich., is planning the erection of an assembling plant in St. Louis, Mo., to cost $200,000. A site has already been purchased. Next year 5,000 cars will be assembled here. The plant will supply the Southwest.

**To Build Truck Factory**—The Union Motor Truck Company, recently incorporated at Sunnyvale, Cal., is planning to erect a factory for the manufacture of motor trucks. C. Y. Williamson is president; Ernest Horstman, vice-president; W. P. Buckingham, secretary, and Edgar Pomeroy, treasurer.

**Remy Takes Big Contract**—The Remy Electric Company, Anderson, Ind., has contracted to furnish all the magnetos for 1 year for the Buick Motor Car Company, Flint, Mich., and for the Willys-Overland Company, Toledo, O. This will necessitate an output of 130,000 magnetos and will require the enlargement of the factory.

**No Bids for Findlay Plant**—The plant of the Findlay Motor Company, Findlay, O., was offered for sale recently by Special Master Commissioner Fred H. Kruse. The lowest bid that could be offered under the order of the United States Court was $137,000. No bids were offered. It is said to be one of the best-equipped electric truck plants in the country.

**Sheboygan Motor Makers Prepare**—The Sheboygan Machine Company, Sheboygan, Wis., which recently incorporated with a capital of $10,000, is preparing to manufacture motors of several types. The company has leased the factory building of the former Kohler company, and manufacturing operations will begin soon.

**Edwards to Locate Plant in East**—C. G. Stoddard and F. E. Edwards recently wrote Carl G. Fisher that they found it impossible to locate the proposed plant of the Edwards Motor Car Company in the Middle West and that it will be necessary to select a city in the East. Mr. Fisher was very active in endeavoring to induce them to locate in Indianapolis, Ind.

**Muncie Gear Works Enlarges**—The Muncie Gear Works, Muncie, Ind., have commenced the construction of a new factory building of concrete blocks and steel. The company manufactures transmissions, steering gears, levers, differential gears, jackshafts, sprockets and cut gears for both pleasure and commercial cars. New equipment is being installed in the gear-cutting department.

**Covert Company Adds to Plant**—The Covert Motor Vehicle Company, Lockport, N. Y., has purchased land adjoining its plant for the erection of a large addition which will treble the capacity of the factory. The work of construction will begin at once. This concern already employs 200 skilled men for the manufacture of axles, transmissions and other parts for automobiles and probably more will be employed when the addition is completed.

**Nordyke & Marmon to Enlarge**—Within the next 2 weeks the Nordyke & Marmon Company, Indianapolis, Ind., will begin extensive additions to its plant. A new two-story office building, 43 by 155 feet, will be erected, the executive and general offices to be on the first floor and the drafting rooms on the second floor. Two additional stories will be erected on building G. These stories will be 52 by 243 feet, giving the company about 25,300 square feet of additional floor-space.

**Roth Selects Factory Site**—The Roth Gear & Tool Company, Lafayette, Ind., has selected a site in that city for its new factory for the manufacture of steering gears for commercial vehicles.

**Lenox Seeking New Quarters**—The Lenox Automobile Company, Brockton, Mass., of which Daniel S. Howard is president and which is now manufacturing automobiles in Jamaica Plain, is seeking a new location. Frank A. McClaskey, of Brockton, Mass., is general manager.

**Goodyear to Erect New Building**—Ground at the southwest corner of Capitol avenue and Walnut street in Indianapolis, Ind., has been purchased by the Goodyear Tire & Rubber Company for $20,000. During the summer the company will erect a five-story building, which it will occupy for offices and display rooms. The building will cost about $50,000.

**Enters Electric Truck Field**—The Atlantic Vehicle Company, Newark, N. J., is a newcomer in the electric truck field. The concern was incorporated in March and already has a large factory in operation in Newark. Trucks of 1, 2, 3½ and 5-ton capacities are manufactured. McKinley Boyle is president of the company and Arthur J. Slade is the designer of the vehicles.

**Hartford After Bosch Plant**—The Hartford, Conn., Board of Trade, having learned that the officials of the Bosch Magneto Company are dissatisfied with the present location of the factory near Springfield, Mass., has started to try to induce the company to move to Hartford, where a splendid location could be secured in the factory district in the southwestern part of the city.

**Plant for Oklahoma City**—W. E. Nation, vice-president of the Retailers' Association, Oklahoma City, Okla., will establish a factory in Oklahoma City for the manufacture of automobiles and motor trucks. It will have 12,000 square feet of floor-space and will contain 6,000 square feet of glass. The construction will permit the erection of additions on three sides. The initial cost of the plant will be $50,000.

**Hail to the V-C Truck**—The V-C truck is the latest product in the commercial car line to be put upon the Massachusetts market. It is made by the V-C Motor Truck Company of Lynn, Mass., recently organized by Frank Vallier and Frank Corlew, the latter having sold out his interest in the Grant Motor Truck Company, Cambridge, Mass. The new company proposes to build a light truck at first and then, if conditions warrant it, other sizes will be added.

**Another Big Tire Plant**—Although the United States Rubber Company, through the United States Tire Company, is operating four large tire plants at the present time, plans are under way for the erection of still another plant, which, when completed, will have a still larger output than the present factories. These are located in Hartford, Conn., Detroit, Mich., Providence, R. I., and Indianapolis, Ind. They have a daily output of tires running into the thousands, yet the demand has been found to be so great that additional production facilities are deemed a necessity.

**Gramm Back in the Game**—B. A. Gramm, who recently sold the controlling interest in the Gramm Motor Truck Company to John N. Willys of the Overland Company, has decided to again embark in the business of building commercial vehicles and will soon bring out his new designs. He will have his own plant, but before putting it into operation will perfect every detail of his new models: The trucks will be simple, easily accessible and all parts standardized and interchangeable.

**Packard Announces 5-Ton Truck**—The Packard Motor Car Company, Detroit, Mich., has added a 5-ton model to its line of commercial vehicles. The new machine has been tried out under severe conditions and over all sorts of roads for 10,000 miles. It is very similar to the 3-ton model, but is more massive and has a more powerful motor. An automatic governor limits the speed of the vehicle to 8 1-2 miles an hour. The motor is of 40 horsepower, A. L. A. M. rating. The wheelbase of the standard chassis is 14 feet, but there are optional sizes giving frame lengths behind the driver's seat from 12 to 16 feet. There are standard and optional bodies adapted to meet a wide range of requirements.

## New Automobile Agencies

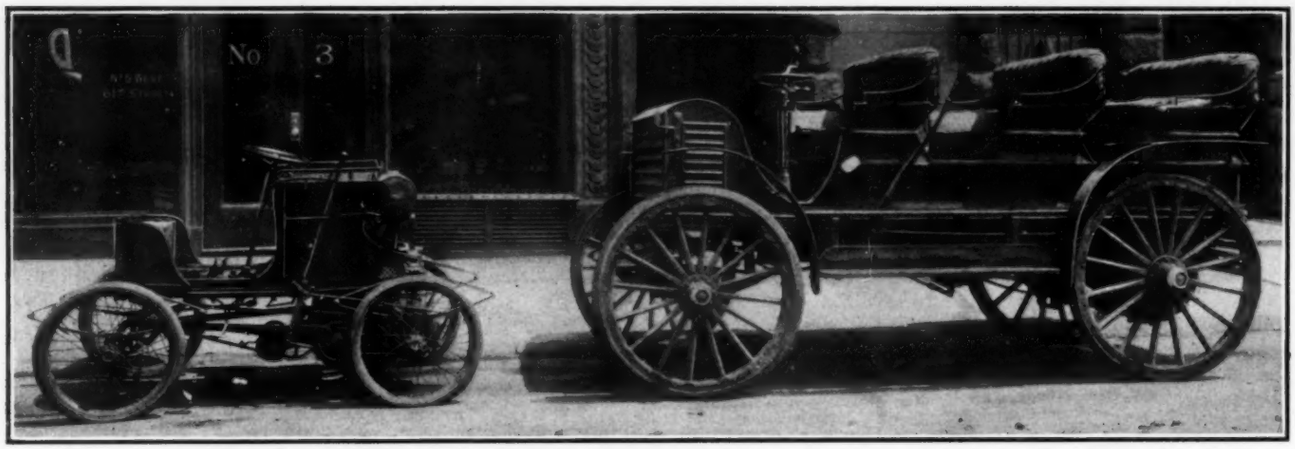
PLEASURE CARS

| Place | Car | Agent |
|---|---|---|
| Baltimore, Md. | Detroiter | R. H. Croxton. |
| Buenos Aires | Havers | Tort & Co. |
| Columbus, Ohio | Inter-State | Thompson & Westwater. |
| Columbus, Ohio | King | Alexander F. Barnhard. |
| Coshocton, Ohio | Flanders, E-M-F | A. L. Crowthers & Son. |
| Hughesville, Md. | Krit | John Dudley. |
| Indianapolis, Ind. | Packard | Carl G. Fisher. |
| Portland, Ore. | Velie | Laurel-Rose Automobile Agency. |
| Toledo, Ohio | Columbus, Electric | Baumgardner & Kibbe. |
| York, Pa. | National | North York Auto and Repair Shop. |
| York, Pa. | Stearns | Auto and Truck Sales Co. |
| York, Pa. | White | Snyder Auto Co. |

**Federal Rubber to Double Output**—Plans are being prepared by the Federal Rubber Manufacturing Company, Milwaukee, Wis., for a six-story addition to the large plant at Cudahy, Wis. This building will be 400 by 100 feet and, when built, will more than double the present capacity of the plant. The total floor-space of the present plant is 170,000 square feet. The investment represented in it is about $1,300,000. The company is the successor of the Federal Rubber Company, having purchased the plant last year. It is expected that a total output of $5,000,000 will be reached this year. From a payroll of thirty-eight men last July when the plant was taken over, the factory force has been increased to 428 men while the sales and engineering forces bring this figure to nearly 600.

**Hele-Shaw Clutch Maker Expands**—The Merchant & Evans Company, with main offices in Philadelphia and branch offices all over the country, has purchased 15 acres of land near Glenova, which is on the outskirts of Wheeling, W. Va., on the Ohio River and Pennsylvania Railroad, together with a tract of the Pittsburgh main coal land alongside, containing large coal deposits. The company's tinplate dipping plant, and possibly some associate departments, will be removed from Philadelphia to the new location by the coming fall. The considerable portion of the Philadelphia plant thus vacated will be turned into an enlarged machine shop for the mechanical department of the business which produces the Hele-Shaw clutch as well as alignment joints and transmissions.

Indianapolis factory leased by Henderson Motor Car Company




Two 17-year-old cars which are now in the possession of the United States Motor Company

# Relics Show Tendencies

## Old Machines Put in Commission in 1895 Reveal Many Ideas Developed in Present Models

THE advance made in automobile designing and building in a comparatively few years is demonstrated by an examination of a 17-year-old Columbia runabout now in the possession of the United States Motor Company.

This relic of the early days in many ways expresses in crude form certain ideas which at this time are current building fashion. It shows at a glance that some of our modern ideas were conceived by designers 17 years ago.

For its day and date the old runabout was a remarkable achievement. The wheelbase is reasonably long but when first built its length seemed unusual. The steering is by pivots in axle jaws, for it seemed to be early realized that the fifth wheel steer was not practical for cars.

Full elliptic springs were used front and rear and wire wheels were the only equipment in those days. Extending the full length of the chassis are heavy reach rods, and this was probably the last automobile in this country to be built with reaches.

The old car has a two-cylinder vertical motor mounted in the rear of the chassis and almost directly underneath the seat. Yet this location affords clearance and accessibility. The motor is water and air-cooled. That part of the cylinder which is swept by the stroke of the piston is cooled by fins that are cast integral with the cylinder. The cylinder-head and valves are jacketed for water-cooling. Cylinders are mounted upon a two-piece bronze crankcase within which is enclosed the fly wheel, transmission and rear axle gears.

As early as 1895 Columbia engineers decided that sliding progressive gear transmission was a practical device. This, however, gave way to a more improved selective transmission.

Another feature of the old veteran is its muffler cut-out. This was the first car ever built with a cut-out, showing that in the earliest days of the automobile manufacturers realized the value of a device which would relieve back-pressure.

The steering wheel was built to be tilted, a practice used to some extent but not generally adopted. Left-side drive was used on the old model, a feature which is now a strong tendency.

The motor has a roller bearing crankshaft. Inasmuch as there were no commercial bearings on the market when the car was built, the cages were all hand-made. In every point the old car represented the most advanced thought of those days, and it is remarkable how many of the early ideas have survived until the present time.

1895-1912—pleasure and business combined

Another old car, also the property of the United States Motor Company, was begun in 1876 and not completed until 1895. It was put in service and used until 1906 when President Benjamin Briscoe induced the proprietor to take it out of his San Francisco barn and ship it to the Maxwell factory.

Mr. Briscoe saw that the car embodied features which were being claimed as new inventions long after this old car had been completed and he not only bought the car but also obtained the drawings that were filed in 1876. The car has been inspected by many persons interested in patent rights on automobile features and has proved that many so-called inventions were neither new nor original.

## Amplex Factory to Continue

SOUTH BEND, IND., June 10—H. N. Hovey and T. C. Starret, of Detroit, chief stockholders of the Simplex Motor Car Company, of Mishawaka, manufacturers of the Amplex car, have acquired all the stock in the concern, the thirty or more small stockholders turning in their stock rather than stand a *pro rata* assessment. This action it is believed will save the concern for Mishawaka. It is said that the Detroit men are now out about $500,000, but are willing to invest more and put the concern on a larger manufacturing basis and will not move the plant to Detroit as has been reported. A meeting of the stockholders was held recently and the affairs of the company amicably adjusted. The concern is not defunct and will not shut down, but will continue operations on a small scale until reorganization. From what can be learned capitalists will be seen in the next few weeks and will become interested and will completely reorganize the concern, and it will it is said be capitalized at $1,000,000.

# Croxton's New Factory

## Company Will Reorganize and Move to Washington, Pa., Where the New Plant Will Be Located

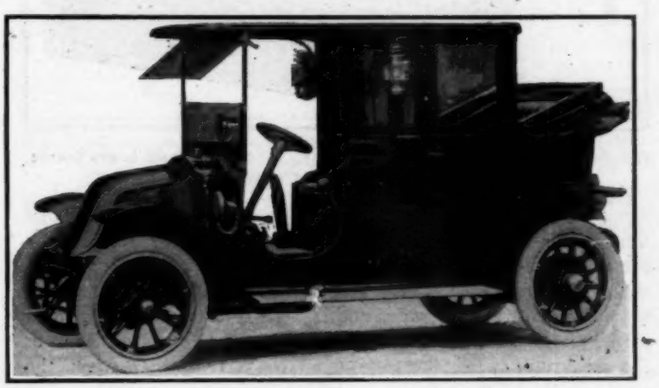
THE Croxton Motor Company, manufacturers of motor cars, taxicabs, etc.,, now located in Cleveland, Ohio, has plans prepared and is receiving bids for a complete new factory to be located at Washington, Pa. It is expected that the company will be operating in its new location August 1, 1912.

The concern will reorganize, taking out a charter under the laws of Pennsylvania, to be known as the Croxton Motor Car Company, with a capital stock of $300,000. J. P. Stoltz will be president and general manager of the new company, the same position he now holds. The new directors of Washington, Pa., will be as follows: John H. Donnan, A. M. Linn, A. C. Warne, J. D. Bigger, C. S. Caldwell, G. W. Dudderer, and J. I. Brownson.

The Croxton block motor has a bore of 4 1-8 inches and stroke of 5 1-2 inches. It is supported to the main frame by special three-point suspensions. Valves are all on one side and enclosed. Ignition is by a high-tension magneto of new construction, timing being automatically advanced and retarded by means of a centrifugal governor, which is embodied in the magneto. It is completely encased and dips into an oil well.

The steering gear is of a new patented design. The operation of the steering arm is obtained by two slides threaded right and left, which push down a rocker arm fastened to the steering lever. The steering wheel is on the left side with gear change lever in the center. All Croxton cars are equipped with an electric starting and lighting system.

Among the interesting departures from the usual type of design is the method of mounting the radiator back of the motor. This facilitates inspection of the motor from the front. Owing to the radiator being mounted behind the motor, the frame is made very narrow in front, which allows the car to be turned in a small radius. Another feature is the cooling system. The fan draws in the cold air at the sides of the radiator, and ejects the hot air from the motor downwards underneath the motor to the rear. The water circulation is of the thermo-syphon system.



Type of taxicab featured by Croxton Company

# Books for the Tourist

TOUR BOOK OF THE AUTOMOBILE CLUB OF AMERICA. Published by the club. Price $4.00 to the general public. Bound in loose leaf form with flexible leather cover.

The tour book should find marked favor everywhere with automobilists. It contains complete road guides and instructions for more than 500 tours of different lengths and embracing all parts of the country. The book is divided into four principal territories, the Hudson East, Hudson West, South and West. Maps are given which show the roads for any of the tours, while enlarged maps give the roads through the different towns. Many excellent week-end tours can be arranged by means of this book, and since it is national in its scope its interest is not limited to those dwelling in and around one particular town, as is the case with some of the ordinary club tour books. The binding of the book renders it possible to insert fresh leaves as they are issued by the club.

SCARBOROUGH'S ROAD MAP AND MOTOR GUIDE OF MICHIGAN. Published for and under the auspices of the Wolverine Automobile Club, Detroit, Mich. Illustrated by complete colored maps of territories covered in the book. 457 pages. Price $1.00.

Containing 458 regular tours and six star tours, this work of the Wolverine Automobile Club thoroughly covers the best tours throughout Michigan. The conditions to be expected along the roads of any of the tours are explained and the garage locations as well as all the other pieces of information necessary to convenience in mapping out a tour or while actually on the road are given. The Guide will be of use to many automobilists who intend making the trip to the Cadillaqua in Detroit during the month of July.

## Goodrich Active in Route Making

Continuing its work of mapping out routes for tourists between important centers of population, the B. F. Goodrich Company, Akron, O., has published a little book illustrating the principal routes leading to Indianapolis which was given out at the time of the race. Just now the route-making bureau is busy compiling maps and road logs covering the states of Ohio and Indiana, a set of them referring to the route to Columbus, Rochester, Syracuse, New York having been issued before. The Indiana-Ohio route book will, in all probability, be out about the middle of July.

Showing the appearance of the new plant of the Croxton Motor Company at Washington, Pa., when completed

# Speedometer and Grade Indicator; Two-Section Windshield; Gasoline Purifier and Starting Throttle; Portable Acetylene Welding Outfit; Fuel Strainer; New Jack; Noiseless Spring Shackle; Automobile Painting Equipment

## S. & C. Speed and Grade Indicator

FOREMOST among the new features of the latest type of speedometer made by Stewart & Clark, Chicago, Ill., stands the incorporation in this instrument of a grade indicator, giving in per cent. the incline of the hill on which a car travels. The device is shown in Fig. 5, with part of the dial removed to show the construction of the speedometer mechanism. The speedometer is of the magnetic type, and the indicator spindle S is driven by flexible shaft from the road wheels. Attached to the spindle S are the rotor R and the permanent magnet M. Inside the hollow spindle S the shaft S is positioned, being held in alignment by jewel bearings supported by a plate P. The shaft S1 is not moved directly by the rotation of the spindle S, but as the aluminum indicator cylinder I is subjected to a drag proportional to the speed of the rotating magnet, S is so turned that the figure on I appearing through an opening in the dial indicates the speed at which the car moves. A gear meshing with the worm on the spindle S actuates the mechanism of the odometer.

## Eagle Flexible Windshield

The Eagle Company, 98 Warren street, Newark, N. J., manufactures the clear-vision shield shown in Fig. 3. This device consists of an "electric" brass frame and plate glass, two panes being used which are held in two independently movable frame sections. The latter are connected by friction joints J1, which permit of varying the inclination of the lower pane, while the joints J permit the adjustment of the upper plate. The manner of attaching the base frame member to the dashboard D is also seen in the illustration.

Besides the ordinary type the makers of this windshield manufacture a model in which the glass front is so prepared as to offer no hold to rain or other moisture.

Fig. 1—Barrett Junior automobile jack. Fig. 2—Schebler gasoline strainer equipped with settling chamber and drain cock

## G. & A. Carburetion Novelties

The G. & A. Carbureter Company, 244 West Forty-ninth street, New York City, has developed several auxiliaries to its well-known venturi-tube type carbureter. These novelties are shown in Fig. 4, being a gasoline purifier and a combination of throttle and strainer for starting the motor in cold weather. The purifier consists of a cylindrical screen inclosed in a bronze casing B

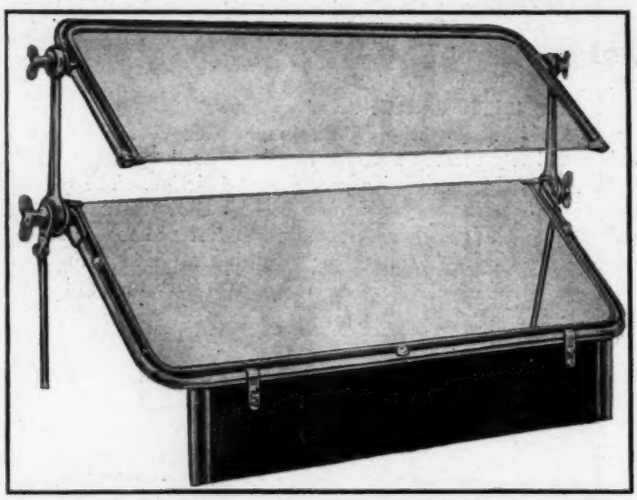


Fig. 3—Eagle windshield made of heavy plate glass and brass frame, flexible by the use of friction joints

equipped with two brass fittings. The screen is held in position in the casing by the spring S encircling its stem, being pressed by the spring against the two plugs P1 and P2. The gas enters the purifier through the inlet I, is forced through the screened wall of the cylinder and leaves it through four apertures in the plate P. Then the gasoline flows through the outlet O to the carbureter, while the foreign matter is retained between the casing wall and the cylinder screening.

The second accessory shown in Fig. 4 is the G. & A. cold-weather starter. This part is placed at the lower end of the G. & A. venturi tube where the air is taken in. The device consists of a screen S2 taking the place of the ordinary strainer, in which a throttle T is suspended which is provided with an aperture C. The throttle is turned by a throttle rod T1 and the tendency is to hold the throttle open by means of the spring S1. The device is so connected to the dash or steering wheel that the driver may close the throttle so that the aperture C limits the admission of air into the venturi tube and gives a rich mixture, doing away with the necessity of tickling the carbureter.

## Buckeye Portable Welding Plant

A portable welding plant, made by MacLeod & Company, Cincinnati, Ohio, is shown in Fig. 6. The equipment consists of an oxygen-making retort R, a scrubber S, oxygen tank O, acetylene tank A and a welding torch T, all of which are mounted upon the truck T1. The retort in which the oxygen is made is charged

with a mixture of sodium chlorate and manganese dioxide, which are heated by a flame underneath the retort, the flame being fed by city gas. The oxygen, which is freed by heated chlorate, escapes through a pipe and is passed through a scrubber S in which it is filtered and washed, thereby being freed from impurities. From the scrubber the oxygen passes into the tank O where it is stored. The tank may be charged to considerable pressure. The admission of gas from the scrubber is regulated by a valve, and a gauge on the outlet pipe of the tank shows the gas pressure inside it. The compressed-acetylene tank A contains the gas which is mixed with oxygen to give a welding flame. This tank is also equipped with a pressure gauge, and both oxygen and acetylene tanks are closed against escape of gas by means of needle valves. The proportion of the two gases in the torch is finally regulated by cocks.

## Schebler Gasoline Strainer

Among the many types of gasoline strainers which are designed to be inserted in the pipe line between the fuel tank and carbureter the model made by Wheeler & Schebler, Indianapolis, Ind., is noteworthy for the settling chamber and drain cock with which it is equipped. Gasoline is admitted through the inlet I, Fig. 2, and passes into the large sphere of the strainer, whence it

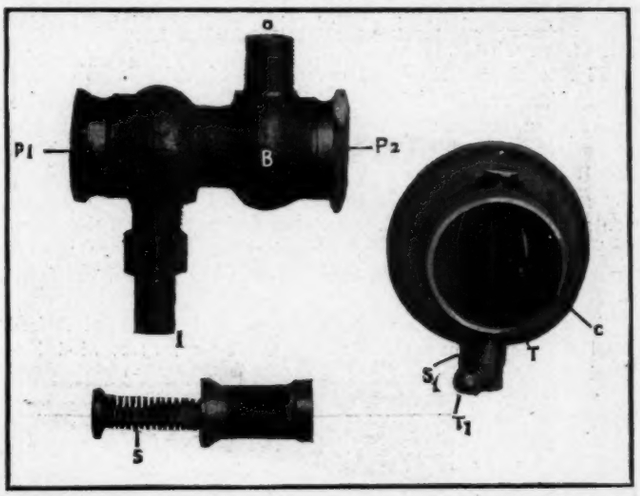



Fig. 4—G. and A. specialties: gasoline strainer and throttle for easy starting, especially in cold weather

flows through a wire mesh screen to the outlet which is disposed diagonally opposite to the inlet. Sediment and water are caught in the trap T, whence they can be drained by opening the cock C.

## The Duff Barrett Junior Jack

The improved Barrett Junior jack, made by the Duff Manufacturing Company, Pittsburgh, Pa., is shown in Fig. 5. This jack is constructed without the use of screws and other parts which work loose in operation. Being of the rack-and-pinion type, the Barrett Junior jack is of conventional appearance. A 1-ton jack of the type here shown is 11¼ inches high when closed, is capable of a 6½-inch raise and weighs 9½ pounds.

## Trench Silent Spring Shackle

A specially constructed spring shackle designed to obviate noise caused by loose spring leaves is manufactured by the Trench Manufacturing Company, Springfield, Mass. A vertical cross section through this device, Fig. 7, indicates the several refinements by means of which close engagement of all parts is obtained and made to last. The end portion P of an elliptical spring is formed with eyes E which engage the shackle by means of dowel members D. The portions E are so made as to include the tubular bushings B. The shackle consists of two bars B1 and B2, the members D extending under a right angle from the bar B1 through and beyond the eyes E of the spring portions. Bar B2 has apertures A which are provided with sockets S1 at

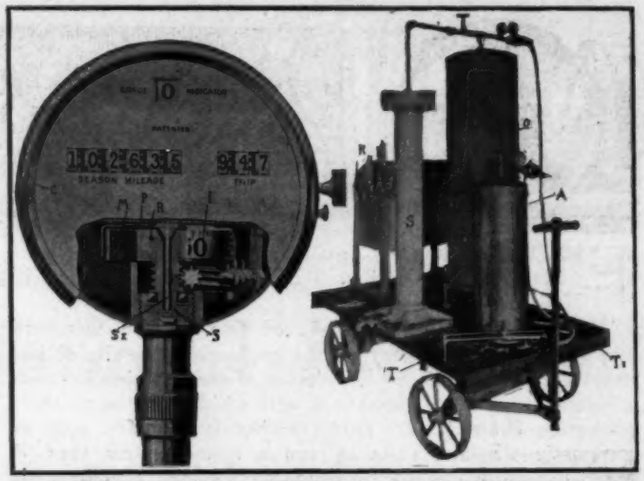


Fig. 5—Stewart and Clark speedometer and grade indicator. Fig. 6—Buckeye portable acetylene-oxygen welding plant

the outer side, the sockets being concentric with the apertures. The members D extend through the apertures A. The screw-threaded ends of the dowels D carry nuts N. Springs S have part of their lengths located within the sockets S1 and are so engaged by the nuts N that the bar B2 is forced to slide on the members D toward B1. This tends to take up edge play around the spring leaves; but besides taking up looseness, the bars B1 and B2 are in frictional engagement with the spring edges and to some extent act as shock absorbers.

The outer coils of the springs S are turned at a slight angle, engaging the radial notches R which are formed on the inner faces of nuts N. This gives a lock-nut effect, so that the whole system is securely held together after once being assembled and adjusted. To insure the necessary amount of lubrication of all parts a number of oil passages are bored through the device. Oil is supplied from the oil cups C which communicate through oil passageways O with the apertures A and the interior of the sockets S. The spring portions P, eyes E and bushings B are oiled through oil ports P1.

## Arsenal Car Painting Scheme

Painting one's own car is said to be an easy job when the system developed by the Arsenal Varnish Company, Rock Island, Ill., is used. This painting scheme utilizes the old coat of the automobile for a ready, smooth surface, so that only three new coats are required to change the color of the car. The painting outfit consists of the ready-mixed paints and the brushes necessary for painting a car of a given size, three equipments for various sizes of automobiles being made by the Arsenal company.

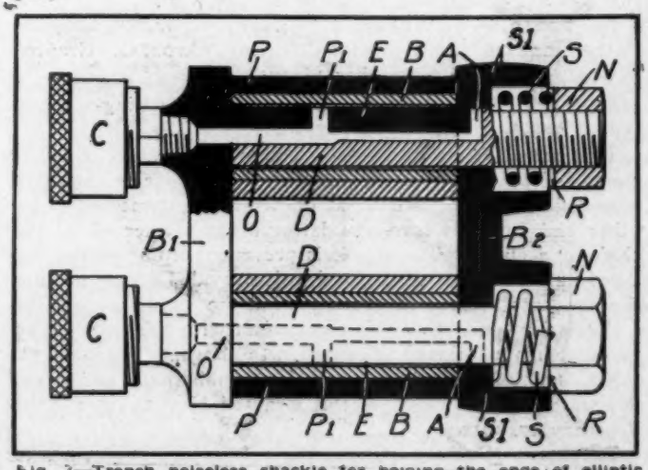



Fig. 7—Trench noiseless shackle for holding the ends of elliptic springs in close relation

**FRICTION Clutch**—Containing an air expansion chamber, insuring ventilation of the clutch to prevent its heating.

This clutch, Fig. 1, consists of two friction members, one S which is stationary on the engine shaft, while M is a movable male member. The latter contains inside its cone a rotatable retarding member R with which it forms a closed expansion chamber C. This chamber is provided with an automatic air inlet valve A and a restricted air vent V. Means are provided for shifting the member M along the

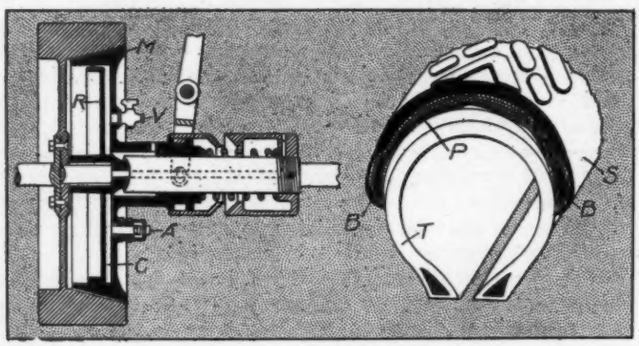



Fig. 1—Dennis clutch




Fig. 2—Dorgan tire protector

shaft which it drives to engage it with, and to disengage it from, the female member S.

No. 1,027,377—to William Dennis, Milwaukee, Wis. Granted May 21, 1912; filed May 15, 1911.

**Tire Protector**—Having a polygonally-shaped inside surface keeping out of contact with the casing portions which are subject to the maximum flexion and vibration.

The tire protector described in this patent, Fig. 2, is an annular sheath S of semi-circular cross-section. The inner face P of the protector is shaped polygonally; the lateral beads B of the sheath are adapted to grip the lateral faces of the tire casing T, thereby retaining the protector in position on the tire. In doing so the angular portions of the inner face of the protector lie opposite to, but out of contact with, those portions of the tire tread which are subject to the greatest flexion and vibration in road work.

No. 1,027,018—to William T. Dorgan, Akron, O., assignor to the Standard Tire Protector Company, Akron, O. Granted May 21, 1912; filed November 18, 1911.

**Engine Starter**—A construction of the spring-winding type.

This patent refers to a starter comprising a shaft which is connected to the engine and on which a sleeve is rotatably mounted. A spring is fixed at one end and connected at its other end to the sleeve, the latter being connected to the shaft by a clutch. The sleeve is prevented from rotating by a pawl and ratchet. A mechanism is provided for permitting the sleeve to rotate and thereby wind the spring, as well as a clutch for connecting this mechanism with the shaft. The two clutches mentioned are adapted to alternate engagement.

No. 1,027,087—to Cornelius Van Tubbergan and Paul Westrate, Grand Rapids, Mich. Granted May 21, 1912; filed February 17, 1912.

**Pneumatic Cushion**—Consisting of separate pneumatic compartments forming a connection between body and axle.

This patent refers to a suspension for automobile bodies, Fig. 3, which consists of a number of superimposed inflatable compartments (C1, C2, C3), which do not communicate with one another. These compartments are inflated to various degrees of pressure and are supported by means which are attached to the body of the car. The body and axle of the automobile are held in relative position by telescoping guides G. A structure S supports the compartments from below, being in turn supported by the vehicle axle. The guide members contain compression devices D which keep body and axle properly spaced under normal conditions.

No. 1,026,893—to Fred L. Baker, Orange, Mass. Granted May 21, 1912; filed November 17, 1911.

**Automobile Headlight Mechanism**—Simple connections between lamps and steering mechanism turn headlights parallel with front wheels.

Fig. 4 shows the subject matter of this patent. The mechanism consists of the headlights H, which are turnably mounted upon suitable sockets and which are connected to a cross-bar B. Blocks B1 having pins projecting through the bar B serve to connect a rod R to the cross-bar. This rod R being fixed by means M to the steering mechanism S, presents a flexible and permanent connection between the latter and the lamp mechanism, whereby the lamps are always turned so that they throw their light in the path of the front wheels.

No. 1,026,709—to Conrad Shermund and Raymond Alfred Mallett, Sacramento, Cal. Granted May 21, 1912; filed November 22, 1911.

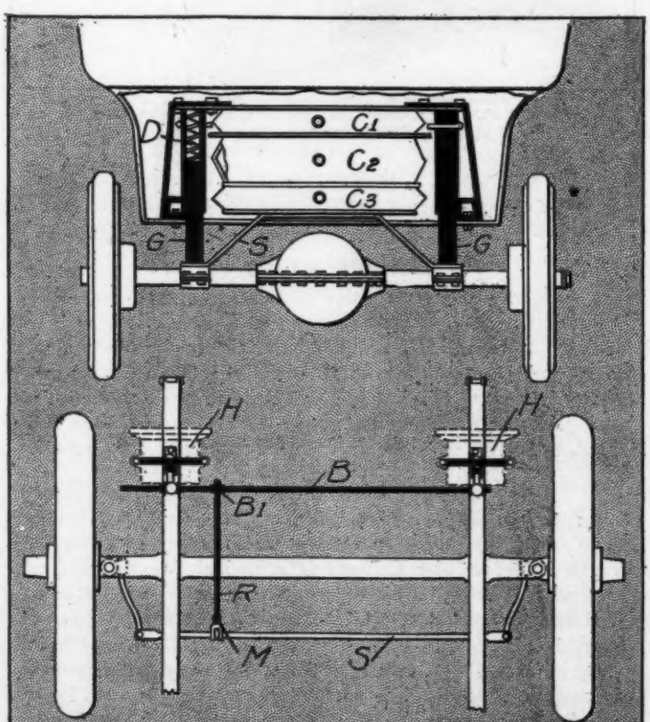



Fig. 3—Rear elevation of car showing Baker pneumatic cushion

Fig. 4—Showing operation of Shermund and Mallet headlight turner